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ABSTRACT

A computer assisted instructional program was developed for teaching the rules of filing to library student assistants in the New York Institute of Technology. The procedure used in developing the program was based upon the Interservice Model of Instructional Systems Design (ISD) developed at Florida State University. The first of seven chapters in the report provides an introduction to the project (including background, a statement of the problem, a description of the project's purpose, and an overview of methods and procedures employed). The next five chapters describe activities at each stage of the development process: analysis, design, development, implementation, and evaluation. The final chapter includes a summary and recommendations. The 12 appendixes, which constitute more than half of the report, include the pre- and posttests, personal data and summative reaction questionnaires, the task analysis, a skills and interests questionnaire, project PERT and Gantt charts, screen design prototypes, and a user's guide. Tables and figures appear throughout. Field test data are also included. (26 references) (GL)

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FILING BASICS: A COMPUTER-ASSISTED INSTRUCTION PROGRAM FOR LIBRARY STUDENT ASSISTANTS IN NEW YORK INSTITUTE OF TECHNOLOGY

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Master of Science

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CHAPTER 1

INTRODUCTION

Overview

This thesis/project describes in detail the planning, development, implementation and evaluation of a computer-assisted instruction (CAI) program which is designed to teach the rules of filing to library student assistants. The method used throughout this project conforms to the Interservice Model for Instructional Systems Design (ISD).

The hiring of student workers in academic libraries is a widespread phenomenon. They represent a pool of cheap and available assistance. Unfortunately, the training of these staff members is burdensome because of the part-time nature of their employment, their academic schedules and their extracurricular commitments. Computer-based training precludes the necessity of repeatedly training a rapidly changing cadre of students in the most basic skills which are needed for error-free job performance. This program is designed to enable the student to learn to file books amd materials, both alphanumerically by classification number and alphabetically by title in accordance with the rules of the Library of

Congress and the American Library Association (ALA) respectively.

Background

The earliest record of an alphabetic arrangement being used to organize a library's collection was the famous ancient library in Alexandria, Egypt which was established by Ptolemy I in the 3rd century B.C. (Daly, 1967). With the advent of printing in the 15th century, prices of books were brought down and libraries multiplied. The Bibliotheque Nationale, the national library of France was founded in the 17th century, the British Library in the 18th and the Library of Congress in 1800. (Academic American Encyclopedia, 1982, Vol. 12). These national libraries developed collections far more voluminous than the 500,000 rolls of Ptolemy's library in Alexandria. Classification and logical ordering now became essential. A library without organization is utterly unusable. The library organization that has evolved into the 20th century is a precise science, one which conforms to a standardized system of logical rules and classification that covers the entire field of knowledge.

By their very nature, libraries are not static. Large portions of their collections are borrowed and returned

daily. The maintenance of a library's logical order depends upon the skills of its staff members, many of whom are student assistants. The training of these staff members is an ongoing responsibility.

Statement of the Problem

Books and materials must be filed in accordance with the filing rules of the ALA and the Library of Congress. When students do not know the general principles of these rules, they cannot apply them to their filing tasks. These tasks include filing records and documents alphanumerically by call number, or alphabetically by title or author. Public Services staff must shelve and reshelve books by call number and bound periodicals by title. Acquisitions staff must search the library's holdings before ordering. That means searching both by call number and by title and author. They must also file cards by title in the Master File. Cataloging staff must file most cards in the shelflist by call number. Periodicals cards must be filed by title.

All academic libraries have a large volume of outflow and inflow. The potential for disorganizing the collection is directly correlated with the level of training received by the staff whose responsibilities include the filing and

shelving of new materials and the refiling and reshelving of returned materials. When books are misplaced on the shelves, they are as good as lost to the collection. With the cost of some new books now rising to three digits, a "lost" book represents a significant loss in dollars. The same is true of any bibliographic records which require filing. Misfiled items frustrate not only the users. They also interfere with internal operations. Acquisitions staff must search and verify before ordering a document. Cataloging staff must regularly retrieve materials, and Reference staff must gain quick access to reference materials at their expected locations. When documents are not where they are expected to be, it is costly in terms of dollars, lost professional time and loss of service to users.

Because of the ephemeral nature of the student workers' employment, the advantages of a CAI program seemed compelling. Among these are individualization of instruction and savings in instructional time, the latter having been particularly reported by the U.S. Army Signal Center and School in their feasibility study of CAI (United States. Civil Service Commission. Bureau of Training, 1971). Other advantages include the availability of this program for each new student worker who will have the advantage of being instructed by a teacher of unlimited patience.

Lastly, it will be available as a program to go back to for reinforcement as needed.

Purpose of the Project

The purpose of the project described in this paper was to develop a CAI program to teach library student assistants in New York Institute of Technology the basic filing rules of the ALA and the Library of Congress, and to make them change their casual attitude about the importance of applying these to their work. Given a filing or shelving task, the student assistants will choose to accomplish their tasks with error-free performance.

Definition of Terms

Readers of this project who are not librarians or training professionals may not be familiar with some of the technical terms used throughout this document. For that reason, those terms are herein defined:

Shelflist - a card file located in the Catalog Department where each card represents the bibliographic record of a corresponding item in the library. Holdings, status and cataloging policy as related to that item are recorded on each card. The cards are filed by call number.

Master File - a card file located in the Acquisitions Department where each card represents the bibliographic record for each item in the library. The cards are arranged

by title.

Classification Number (Call Number) - an alphanumeric code assigned to each record according to its subject content. This number becomes its locator on the shelf. Classification makes possible the grouping of documents on similar subjects in one location. The classification scheme used in New York Institute of Technology, as in most academic libraries, is that of the Library of Congress. Most public libraries use the Dewey classification system.

COMCAT - an acronym for Computer Output Microform Catalog. Our library's collection is on microfilm. It is displayed on microform readers and it contains everything that the old card catalog did. The readers are manually controlled by the users. One can browse the collection by author, title or subject. Because several records can be viewed on the screen panel at once, browsing is facilitated. Changes and additions to our archival tape are made online by the Catalog Department. The microfilm catalog is updated quarterly and reflects the changes and additions that were made that quarter.

Computer-assisted Instruction (CAI) - is an instructional method which uses the computer as an integral part of instruction. The computer acts as an instructor, presenting the material, asking questions to check comprehension, presenting more material, and testing.

(United States, 1971). Instruction may be in the form of tutorial, drill and practice, simulation and games. It is individualized and self-paced.

Tutorial - is a form of CAI instruction which provides presentation and guidance. The computer teaches by interacting with the learner. The lesson progresses segment by segment as the learner's understanding is checked. Based upon his/her understanding, the learner continues to another segment or is branched to a screen which presents it in a new way. This is a method of providing corrective feedback or remediation.

Authoring Language - a programming language which is especially designed to facilitate the production of CAI materials.

Unison - an authoring language which features power and flexibility. Shaefges (1986) states that UNISON provides:

* full control over all aspects of the lesson display;

* branching options to sequence the user through the lesson or to allow complete learner control over the lesson;

* reponse analysis commands that allow the designer to build a dialog with the user.

Assumptions

1. That CAI is an effective medium for the training of library student assistants.

2. That student workers who use this program will gain a basic familiarity with library filing rules.

3. That supervisors will find this program to be a helpful instructional tool.

Limitations

1. That the CAI instruction should be followed by close personal supervision.

2. That not all library training can be accomplished through CAI.

3. That the program's availability for reuse and reinforcement should be determined by the supervisor.

4. That the program is designed for the library student assistants in New York Institute of Technology and may not be appropriate for library workers in other libraries.

Method and Procedures

The method and procedure used in developing this CAI program is based upon the Interservice Model of Instructional Systems Design (ISD) developed at the Florida State University. (Branson, 1976). The ISD model contains five phases: analysis, design, development, implementation and evaluation. These phases and their components have been applied to the design of this CAI program.

Analysis

The designer conducted both a needs analysis and a task analysis. Present performance was observed by direct observation of the library student assistants, especially those who were in charge of shelving books. An effort was made to determine the reasons for the errors that were detected. An analysis of the target population was made. Students filled out a questionnaire which yielded data on their age, educational level, place of birth, and country where they were educated. A pretest was administered which yielded data on whether the student assistants understood:

1) alphanumeric sequencing

2) the decimal portion of the call number

3) the basic principles of filing

The questionnaire and pretest can be seen in Appendix A. The data was collated and processed and a task analysis was done. The desired performance was identified. Once the tasks were determined, the next step was to develop the instructional objectives. This was done according to Mager (1984) who stated that performance objectives have three characteristics:

1) Performance - the performance the learner will demonstrate.

2) Conditions - the important conditions under which the performance is to occur.

3) Criteria - the level of performance that will be considered acceptable.

Design

The results of the needs and task analyses became the basis for the design. Learning objectives according to Mager (1984) were formulated. A pretest given to the trainees yielded data on entry-level behaviors. Test items were developed. They were in the form of drill and practice with both correct and incorrect feedback. Graphic features were designed and the sequence of instructional units was determined.

Development

The media selected was CAI. The lesson is a tutorial. It features color and graphics. All of Gagne's instructional events are included. An attempt was made to match the instructional level to the target population who are all college students, some of whom are on the graduate level. Three modules were planned. Tests were designed. Feedback was provided. Back-up and review capabilities were programmed. Testing was conducted on one module before proceeding to the next one. One-on-one trials were conducted which resulted in some technical revisions.

Implementation

Facilities for running the program are readily available in the library. The AV room has two Commodore PCs with color monitors. Students can view the program in a quiet and undisturbed setting. Time was allocated for students to view the program after basic orientation. At this phase, four student assistants, four paraprofessionals and one outside-the-library person used the program.

Evaluation

One-on-one testing took place during the first stage of formative evaluation. One trainee felt there was not enough opportunity to back up and review. Another detected a bug in the return to the index. These tests resulted in debugging and revision.

During the summative stage of evaluation, the supervisor of the trained students was asked to assess their performance subsequent to the training program. Summative evaluation forms were given to all who eventually used the programs -- student assistants, paraprofessionals, professionals and some outside the library community. Data was collected and processed in order to compare the actual learning outcomes with those which were intended.

Summary

Because library filing skills are taught only in graduate library schools, library student assistants cannot be expected to have these skills when they present themselves for work. They must receive on-the-job training. This becomes difficult when one considers the revolving door aspect of these students' employment. At the very most, they can only remain on the job for four years. In fact, many leave much sooner, often because they find their academic work deteriorating as a result of their hours of work. A CAI program that provides this instruction can greatly relieve the burden of the professional librarian who is taxed with the repetitive training of an ever-changing staff of student assistants.

CHAPTER 2

ANALYSIS

Introduction

The first step in the five-phase process is analysis. This is the technique by which training needs are identified and assessed. Dick and Carey (1984) define a need as a gap between what is and what should be; between the way we would like things to be and the way they presently are. A needs analysis was conducted. We knew that books and records were often misfiled. We also knew that we wanted perfect order. The target population was easy to identify. They were the student assistants whose task it was to file and shelve. The scope and purpose of the instruction was defined. A training unit was needed to close the gap between the less-than-perfect performance that prevailed and the error-free performance we wanted. A review of the existing literature revealed that the particular CAI program that the designer proposed had not yet been reported. The phases of design and development, including instructional goals and objectives, were planned.

Needs Analysis

The need for a training program for library student assistants was confirmed by the professional staff who encountered filing errors in the course of daily problem-solving tasks, and found these errors to be obstructive to successful problem resolution. Input from colleagues regarding the learners' performance was encouraged and data was collected from the learners themselves. Most of them indicated some confusion about the decimal portion of the call number. A questionnaire was administered asking the students to rank their job in terms of importance to library users on an ascending range of 1 to 5. This questionnaire can be seen in Appendix B. None of them selected five. This data indicated a need for instruction, which according to the taxonomy of Bloom (1964), can be characterized as within the affective as well as the cognitive domains. Table 1 illustrates the types of behaviors in each of these domains.

Job Task Analysis

Filing and shelving tasks can involve, books, cards and records. They can be divided into:

1) alphabetical filing by title or author

2) alphanumerical filing by call number

Table 1

The Cognitive Domain	The Affective Domain
Knowledge Recall of data	Receiving Attending; Awareness; Willingness to hear; Controlled or selected attention
Comprehension Translation; Interpolation of interpretation	Responding Willingness to react; Acquiescence or satisfacting in responding
Application Unprompted use of an abstraction; Using a concept in a new context	Valuing Sensing worth; Commitment; Conceptualizing a value
Analysis Breaking down systems or communications into components	Organization Organizing values into a system; Determining the interrelationship of values; Establishing dominant or pervasive values
Synthesis Building a structure or pattern from elements found in diverse sources	Characterization Reliable performance of value systems; An individual's unique characteristics
Evaluation Making judgments about the value of ideas, works, solutions, materials	

Each task consists of many subskills. The hierarchical analysis of these tasks and subskills can be seen in Appendix C.

Target Population

The target audience of this training program are all students in New York Institute of Technology. They work in the following departments:

1) Public Services
2) Acquisitions
3) Cataloging
4) Periodicals

Their status in college ranges from freshman to graduate level. This wide span of educational status means that the level of instruction had to provide for various tracks and had to give the trainee control over the speed and level of difficulty. Many of them have been born and educated in foreign countries, but all have a working knowledge of English. Many of them have both mathematical and computer skills. Data on their skills was gathered by a questionnaire which was distributed to the students. The results were as follows:

100% had verbal skills (reading);

66% had both verbal and quantitative skills.

The questionnaire and a summary of the results appear in Appendix D.

This information suggested that the external instruction should support and integrate these internal conditions. For 34 percent of the students who possess only verbal skills, the learning should offer optional drills and practice, especially in the concepts dealing with numbers. A self-paced learning unit would best be able to match the instruction to the various statuses and skills of the trainees.

Organizational Constraints

There were no constraints in relation to the design and development of the program. In terms of implementation, the library has the necessary equipment. What does seem to be lacking is time. There always seems to be a backlog of filing tasks, especially in the shelving of books. The pressure to reduce the backlog is great and students are set to work as soon as they sign in. Management will have to be convinced that the thirty minutes that the student will spend away from the job while viewing the program will be very cost-effective, especially when measured against the loss of professional time and the unavailability of valuable books resulting from misfiled items.

Instructional Goal

New library student assistants will be able to file library materials both by alphabet and by call number, and they will apply this knowledge to their filing tasks. In the present arrangement, students are given the briefest and most cursory instruction before they are sent out to perform their tasks. This CAI program consists of formal instruction in the skills and knowledge that are required to do the job well. It will communicate to the students that we value their work enough to invest time, effort and expertise to insure that it is done well.

The medium selected was a CAI program. CAI is particularly suited to the teaching of cognitive skills. This was determined by using the model produced by Anderson (1983) who invites the designer to answer questions about the instructional skills and then follow a flow diagram to the point of appropriate media selection.

CAI has the additional advantage of individualization through branching. The program is a tutorial consisting of information presentation, demonstration of examples, drill and practice, feedback and reinforcement. It features color and graphics, including overlay techniques. Graphics

are used both to motivate the user and to focus on concepts more sharply. Color combinations are those which lead to the highest speed and accuracy in reading:

1) blue or green on white
2) magenta on green or cyan
3) red on yellow or green
4) white on black (Gillingham, M.G., 1988).

Literature, Existing Course, and Material Review

The source of the filing rules is the ALA rules for filing catalog cards (1968). A review of the literature revealed that there is no CAI program which teaches library filing skills. There are programs which feature bibliographic instruction, and others that teach online searching skills in various databases. Most of these programs use tutorial and/or drill and practice, but some of the searching programs use simulations. One of the earliest prototypes was called Library Research Skills. It was developed at the University of Delaware and was based on their required PLATO (Programmed Logic for Automated Teaching Objectives) library instruction lessons in freshman English classes (Gratch, 1986). The program teaches the use of the card catalog and Library of Congress

subject headings, periodical indexes, government documents indexes and newspaper indexes. Many of the mainframe Plato programs on library instruction software have been in use since the mid 1970's. They are now available for use on microcomputers.

Related Theory

Many people feel that CAI is a mere revival of programmed instruction in an automated format. Skinner, who is the acknowledged father of programmed learning, was the first educator to insist upon clearly stated objectives and upon maximum permissible error rates. The cornerstone of his behavioral modification theory is reinforcement. This principle is now discernible in programmed learning systems in which the learner gets immediate reinforcement (Craig, 1987). Romiszowski (1985) cites Leith on the changes in the development of programmed instruction. Some of them include:

1) small steps
2) error-free learning
3) self-paced learning
4) programming methods -- linear or branched

There seems to be no doubt that programmed instruction is the progenitor of CAI. But as Romiszowski (1985) concludes, the real potential of CAI is that it opens up possibilities for the development of experiential programs of a much more

sophisticated type than was possible with the technology of 20 years ago.

Literature Review

A literature search was conducted using the New York Institute of Technology library's bibliographic searching facility named Techsearch. Both BRS' ERIC and DIALOG's LISA (Library and Information Science Abstracts) databases were searched using the primary term "computer-assisted instruction" and the Boolean operators and/or with the secondary term possibilities which were:

library student assistants;

library student-aides;

library student workers;

library personnel;

library technicians.

The search was narrowed by qualifying it by date which was from 1980 on. The search retrieved 39 articles and conference papers, a selection of which are summarized below:

1. Guilfoyle, M. C. (1985). Computer-assisted training for student library assistants. Journal of Academic Librarianship, 10, 333-336. CAI can be an effective means of training library student workers. From the supervisor's standpoint, CAI precludes the necessity of repeatedly presenting basic information to a body of student workers

who are difficult to assemble as a group. The author outlines the process involved in the development of a librarian-produced program for academic library student assistants. The steps described by the author are: decision-making; developing the lesson; programming; keeping user informed; debugging; implementation.

2. Gratch, B. (1986). Computer-assisted instruction: An unfulfilled promise. Wilson Library Bulletin, 61, 20-22. The author surveyed 50 librarians in an attempt to identify the types of software used in academic instruction programs. Most of the programs found were used for bibliographic instruction. A few were used for online searching. CAI can be an effective instructional medium, and can relieve professionals of the repetitive tedium of teaching library skills. It can also be beneficial for staff training purposes.

3. Rawlins, S.M. (1982). Technology and the personal touch: Computer-assisted instruction for library student workers. Journal of Academic Librarianship, 8, 26-29. The frustrations of attempting to instruct a part-time, variable work force prompted the professional staff of the University of Evansville Library to consider CAI. The program was developed for use by student workers in the Circulation Department. It taught basic information such as borrowing and overdue policy, charging and discharging,

holding policy, Library of Congress call numbers, and general library policies. After two years of use, it was found that the program is equal or superior to traditional methods of training new library student workers. While costing the same, the program frees staff members for other duties. Student response has been favorable.

4. Fitzgerald, P., Arnott, P. & Richards D. (1982). Computer-assisted instruction in libraries: Guidelines for effective lesson design. Library Hi Tech, 4, 29-37. CAI is a powerful technology that librarians have been quick to discover. However, in comparison with other academic disciplines, little quality software exists for library applications. The article provides guidelines to assist librarians in development. Librarians across the country are using CAI to teach library skills to freshmen, to train staff to file cards in catalogs, and to teach patrons to use online catalogs. The potential of CAI in these areas has scarcely been tapped. It is ideally suited to teach basic library skills to large numbers of people who would otherwise involve library employees in time-consuming and repetitious instruction.

5. Scott, A. (1984). Mini- and micro-computers in education and training for library and information work. Education for Information, 2, 109-115. Minicomputers and microcomputers have given the impetus to the use of

computer education in library and information work. Their use as tools in education and training is examined especially with reference to pre-professional education and in-service staff training. Research and development in the United Kingdom is described.

6. Arnott, P. & Richards, D. (1985). Using the IBM personal computer for library instruction. Reference Services Review, 13, 69-72. In 1981, the University of Delaware Library chose CAI to replace a traditional approach to teaching basic library skills to freshmen English students CAI was already well established in the University which was using the PLATO network. Three librarians developed five PLATO lessons. The first explains how a card catalog is used to locate books and discussed the use of the Library of Congress subject headings. The second lesson discusses periodical articles and the use of periodicals indexes as sources of information. The third lesson discusses newspapers as sources of information and the use of newspaper indexes. The fourth lesson deals with government publications in the university's library. The final lesson gives information on the physical location of various types of materials in the university's library. The original package of basic library skill lessons serves as a base upon which to build lessons on the use of more sophisticated materials.

7. Boyce, B. (1987). Computer-assisted instruction for online searchers. Bulletin of the American Society for Information Science, 13, 34. There is no shortage of software for teaching online searching. But there is little effort to determine whether any of it actually improves instruction. The author grants that systems like MEDLEARN were not designed to replace classroom instruction. They were to provide a learning environment where classroom instruction was unavailable. But there is no reason why other CAI online searching systems cannot be tested for effectiveness.

8. Gratophorst, C. (1984). Training university faculty as end-use searchers: A CAI approach. National Online Meeting Proceedings, 77-82. The author discusses the training program which includes a CAI package recently implemented at the Fenwick Library, George Mason University (Virginia). Trainees are introduced to Boolean logic, truncation, proximity searching and search strategy. The databases used are BRS, DIALOG, and BRS/After Dark. Library search staff act as consultants and intermediaries.

Survey of Existing Courses and Materials

In the Fitzgerald article (1986), the author stated that librarians across the country are using CAI, among other methods, to train staff to file cards. I found no support for this statement. Among all the articles that

were retrieved by the literature search, which included all the library literature sources, there was no instance of a particular CAI program for instructing trainees in filing. I also searched the Library of Congress subject authority under "library filing rules" and did not find any citation that was linked with CAI.

Plan for Design and Development Effort

The phases following analysis incude design, review and eventual implementation. Since this project is a CAI program, the design phase included programming and debugging.

Project Plan

The project was started in February 1988 and ended with a summative evaluation the second week in May 1988. In planning the project, the designer used both a PERT and GANTT chart. They can be seen in Appendix E. These defined the critical paths of the major events and became the principal control documents for a management-by-objective approach to the control of the project's progress.

Budget

The cost of the project includes the designer's time valued at $25. per hour, and materials needed to design and implement the final product. Since the author acted as designer, programmer and subject matter expert (SME) all rolled into one, the total cost is less than it would have

been if an SME, programmer or consultant had been part of the project team. The expenses of the project, when measured against the loss of materials and professional time represents an investment, the returns on which will increase as the program is repeatedly used as it is designed to be used. The detailed budget may be seen in Table 2.

Table 2

Budget

Expense	Hours	Cost	Subtotal	Total
Labor				
Analysis	25	$ 625.		
Design	50	$1250.		
Development	50	$1250.		
Field Trials	10	$ 250.		
Revision	20	$ 500.		
Implementation	20	$ 500.		
Evaluation	15	$ 375.		
Total Labor			$4750.	
Materials				
Authoring Language Package		$150.		
Computer Supplies		$ 50.		
Stationery		$ 20.		
Total Materials			$ 220.	
Grand Total				$4970.

Summary

The analysis indicated that a training need existed because of the gap between the desired and present performance. The target population was identified as the student assistants in each of the library's departments. The instruction was determined to be in the cognitive and affective domains. A need for the project was confirmed by the literature review which indicated the lack of such a program. A project plan was developed and the major events were scheduled.

CHAPTER 3

DESIGN

Introduction

When one uses the term design in relation to instruction, one cannot help thinking of other areas of design, i.e. industrial design, architectural design or engineering design. What does the instructional designer share in common with other kinds of designers? All are involved in analyzing, planning, purposing, designing and carrying out in a skillful way.

The second phase of the five-phase instructional design model is design. Just as in all kinds of design, tasks were identified and analyzed. Instructional objectives were formulated. Entry behaviors were factored into the instruction and the learning activities were sequenced. Methods for evaluating the program were planned as were methods to insure that learning would be transferred to the job.

Instructional Task Analysis

During the analysis phase, it was determined that the library student assistants needed more training than they were receiving. The designer concluded that there were

three areas on which the instruction would focus. They were:

1) The general principles of filing

2) Alphabetical filing by title or author

3) Alphanumeric filing by call number

Following the instruction, the students were expected to state the two general principles of filing. They were as follows:

1) Nothing files before something

2) Elements must be compared character by character

In alphabetical filing, students learned the following rules:

1) Initial articles are disregarded for filing purposes

2) The period, slash and hyphen are treated as spaces

In alphanumeric filing, the students learned to divide the call number into the following elements:

1) Letters

2) Digits

3) Decimals

Instructional Objectives

The instructional goal was derived from the needs analysis. Staff members were unanimous in their expression of dissatisfaction with filing errors. The burden of the errors to the users could well be estimated. But the harm

to internal operations was experienced daily. The objective was the acquisition of the rules, and the application of that knowledge to the tasks to be performed. The learning in the affective domain was to assure that the students would choose to achieve error-free performance.

The performance objectives were written into the format suggested by Mager (1984). That format included three components:

1) Performance

2) Conditions

3) Criterion

The objectives of this program are as follows:

1.0 Given a filing task, the student will choose to attain error-free performance.

1.1 In the student's own words, he/she will state the the two general principles of filing. The statement must include the two concepts:

a) Nothing files before something

b) Compare elements character by character

2.0 Given cards or periodicals to be filed by title or author, the student will arrange or file them in alphabetical order.

2.1 Given titles to file, the student will disregard initial articles. Titles must be filed by the first character following the disregarded article.

2.2 Given titles to file, the student will treat the period, slash and hyphen as spaces. Spaces must be treated as nothing.

3.0 Given books or cards to file by call number, the student will separate the call number into its constituent parts. The letters, numbers and decimals must be identified.

A representation of these performance objectives and their subskills in hierarchical arrangement can be seen in Appendix F.

Entry Behaviors Defined

The entry behaviors that this program presumes are:

1) Reading English on a college level
2) Alphabetizing in English
3) Recognizing decimals in an alphanumeric sequence

All of the assistants are students in our college. The list of countries of their origin and in which they received their primary and secondary education reads like a United Nations roster. Most of them have computer skills. There

was no need to teach keyboard skills or elementary computer basics in order for them to use the program.

Group and Sequence Objectives

The sequence of a tutorial is generally linear. Information is presented and is followed by drill and practice. Then it is summarized. This pattern is repeated with the next units of information. The designer drew a flow diagram to help chart the primary sequences. It helped to make clear the order in which the trainee would receive directions, presentations, interactions and feedback. It also clarified the sequence that would be followed as a result of student performance. Depending upon student response, the linear sequence can be interrupted by branching. Alessi (1985) states that branching may occur based on individual performance, cumulative performance or student choice. It can go forward, backward or sideways. CAI attempts to give the user control over the sequence as well as the pace of instruction. This can be accomplished by forward progression or by backward review. The latter was made possible by a single keystroke. The units in this program were not regrouped or resequenced. This tutorial program begins with a menu. The choice given the student to select a section determines the lesson sequence. After the

completion of a lesson, the user can return to the menu and proceed to new sections or choose to review those already accomplished. The flow charts can be seen in Figures 1 and 2.

Within each lesson, subunits were organized into hierarchical sequence. Hierarchies were determined either by the degree of difficulty of the learning, or by the degree of its familiarity to the student. Some units required the learning of several rules which were not distinguished by either difficulty or familiarity. In those cases, the sequence was guided by the designer's own intuition for logical order.

Learning Activities Specification

The program followed a tutorial pattern. Information was presented in as attractive manner as the medium supported. Graphic representations of information were used as frequently as seemed appropriate to the designer and were created to heighten interest. The program was designed to run between 20 to 40 minutes depending on the speed of the user. The designer attempted to integrate Gagne's nine instructional events (1985) into the learning activities. These activities may be viewed in Table 3.

LESSON FLOW CHART

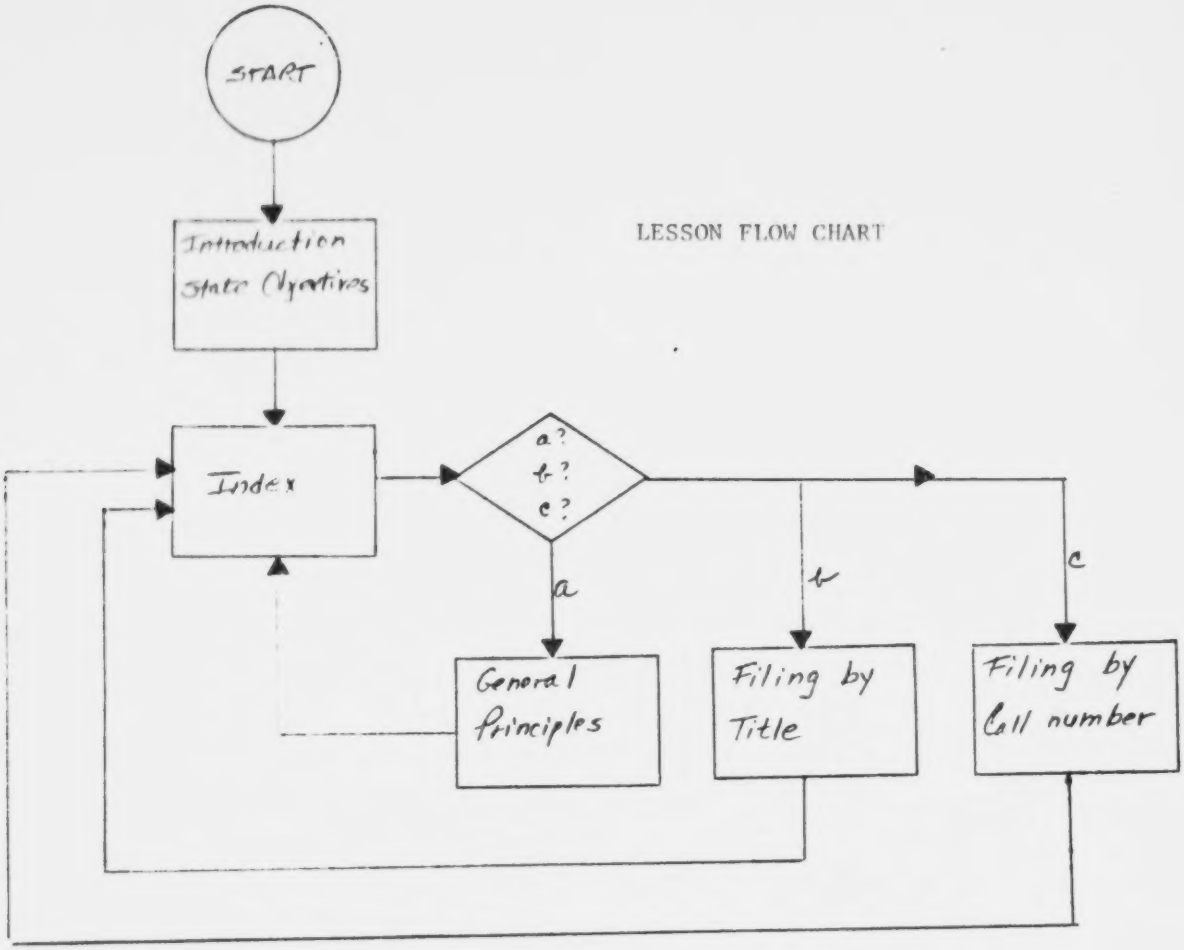


Figure 1

Figure 2

UNIT FLOW CHART

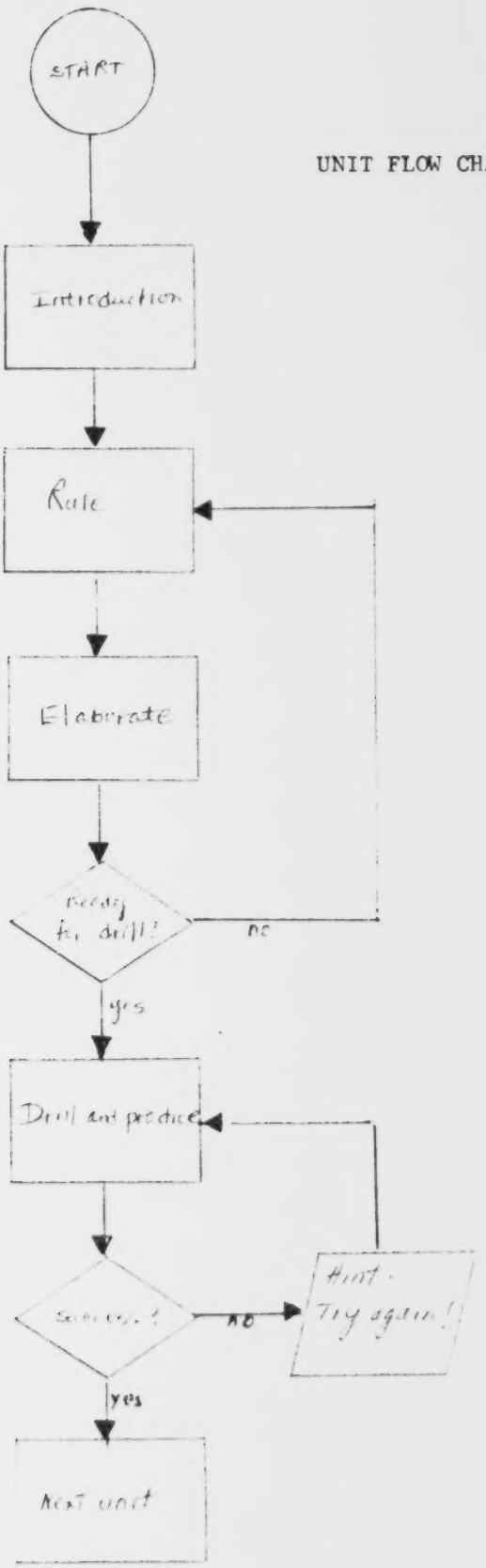


Table 3

Learning Activity Instructional Strategy Matrix

Learning Activity	Content	Instructional Method	Practice
1.1	General Filing Principles	Presentation with examples	Restatement Fill in the blanks
2.0	Alphabetic Filing	Presentation with examples	Sorting
2.1	Treatment of Initial Articles	Presentation with examples	Sorting
2.2	Treatment of Period, Slash, Hyphen	Presentation with examples	Sorting
3.1	Alphanumeric Filing	Presentation with examples	Dividing the call number into its parts

Since the learning domains were both cognitive and affective, the designer chose the following specifications:

1) Providing motivation at the start of the program -- an attractive title page and colorful graphics.

2) Building instruction from prior knowledge -- a graphic of a NYNEX telephone book, a Webster's dictionary and a set of Brittanica encyclopedias was displayed. User interaction is invited by asking what the three pictured items have in common. If they do not know, or they guess

wrong, the program supplies the answer -- a filing arrangement of course -- and suggests the consequences of misfiling to the users of those items.

3) Providing adequate examples of the applied principles.

4) Providing opportunities for user interaction at the end of each segment.

5) Providing feedback and reinforcement.

6) Providing opportunities for several tries after failure.

7) Providing opportunities for review.

Assessment System Specification

According to Dick and Carey (1987), there are four types of criterion-referenced tests:

1) An entry behaviors tests -- designed to measure skills which are critical to beginning instruction.

2) A pretest -- referenced to the objectives the designer intends to teach.

3) A posttest -- measures objectives already taught.

4) An embedded test -- included as part of the instructional strategy to test a single objective.

In this project, the first two were essential to the beginning of instructional design.

Evaluation System Specification

The evaluation used in this project included both formative and summative evaluations. In the former, the designer used one-on-one trials with the target population for whom the instruction was intended. The results pinpointed areas in the program which needed improvement. It also detected programming errors which were subsequently debugged. According to Kirkpatrick (1987), summative evaluation measures four indicators:

1) Reaction (sometimes called the happiness factor)
2) Learning
3) Behavior
4) Results

Two of the four indicators -- reaction and results -- were measured by data collected from a questionnaire following the delivery of instruction. The summative questionnaire is in Appendix G. The second indicator -- learning -- was evaluated by giving a posttest following the instruction in the same format as the pretest. The posttest is in Appendix H. Behavior could only be measured by observing the students on the job. Supervisors were asked to report on improvements in attitude and accuracy in their task performance.

Learning Transfer System Specification

After the program was completed, tested and validated, it was demonstrated to all the department supervisors who had library student assistants working for them. Each supervisor was given a working copy of the program. They were all enthusiastic about using it for the orientation of new workers. We discussed the value of using the program with older workers for reinforcement of skills they were already using in their tasks. We planned a schedule in which each of the students would be responsible for a limited range of shelves. This communciated to the students a sense of accountability, and an awareness that mistakes in their ranges would be their responsibility. Supervisors were asked to observe whether the new learning was being applied to the job. If not, it would point to the need for further training.

Review and Selection of Existing Materials

There is a plethora of written materials on CAI. Although much of the theory and method was incorporated into the program design, it is difficult to assign attribution of these techniques to one or more of the many works that surrounded the designer during the design phase.

Schaefgas' Unison Author Language Tutorial and Unison Author Language Reference Manual were the two works I used to gain mastery in the authoring language with which the program was produced. As an official source for the subject matter, I used the American Library Association's ALA rules for filing catalog cards.

Summary

A task analysis was conducted which revealed the need for better training of library student assistants. Objectives were formulated and sequenced, entry behaviors were defined and CAI learning activities were specified. Three types of criterion-referenced tests were designed. An entry behaviors test measured critical skills and a pretest measured filing skills that the program intended to teach. A posttest was administered at the completion of the program. The designer took measures to insure that learning would be transferred to the job. Existing materials were reviewed and three were selected for inclusion in the instructional design.

CHAPTER 4

DEVELOPMENT

Introduction

It is at the development phase that many of the designer's planning efforts begin to bear fruit. Analysis and design, when done well, establish the parameters for instructional activities. It is at this point that the designer focuses on the learning events which are required for the performance objectives.

For optimum learning to occur, there must be a convergence of instructional activities and learning events. Instructional materials were developed which included the script, screen designs and a user's guide. The screen designs can be seen in Appendix I. These were based upon the learning activities planned during the design phase.

Learning Activity Development Scheme

In a phenomenological study cited by Carrier, S. I. (1988), students with low self-image were observed to choose pheripheral seats in the classroom, those which encouraged a passive presence with little communication between teacher and student. This phenomenon marks the most obvious

difference between CAI and classroom instruction. In a CAI lesson, each student must respond. According to Steinberg, E. R. (1984), the privacy of the students' interaction with the computer terminal decreases their embarassment about giving a wrong answer. Of course, the CAI lesson must be designed to provide encouraging feedback to wrong answers. A well-designed one will also accept many variations of a correct answer.

Interactivity and direct communication was incorporated into the first module. This was the one which, if successful, would become the prototype for the remaining lesson units. Drill and practice with appropriate feedback and immediate reinforcement was refined at this stage. This module was developed and tested before proceeding to the rest of the program.

Lesson Activity Development

The program as finally developed was right on schedule and ran approximately 30 minutes. It consisted of three lessons which appeared on a menu. The learning activities coincided with Gagne's nine events of instruction (1985). Those events are enumerated in Table 4.

Table 4

Instructional Events

1. Gaining attention
2. Informing learners of the objective
3. Stimulating recall of prior learning
4. Presenting the stimulus
5. Providing learner guidance
6. Eliciting performance
7. Providing feedback
8. Assessing performance
9. Enhancing retention and transfer

The following illustrates the application of Gagne's nine instructional events:

1. Gaining attention -- a bright and attractive title page with a distinctive title.
2. Informing learners of the objective -- the first screen following the title page had two information windows which informed the students what they will learn and upon what sources the instruction is based.
3. Stimulating recall of prior learning -- the subject of

filing was introduced by a graphic of a Webster's dictionary, a NYNEX telephone directory and a set of Brittanica encyclopedias. The student was asked to guess what each had in common.

4. Presenting the stimulus -- the rule or concept was presented followed by an example which attempted to graphically represent the cards or books on which the rule would be applied.
5. Providing learner guidance -- additional examples were provided, after which students were asked if they were ready for practice.
6. Eliciting performance -- drill and practice was given, often in sorting cards. The trainee was asked to arrange them in filing order by selecting the letter associated with each card, and by arranging them at the cursor in xyz format.
7. Providing feedback -- both correct and incorrect feedback was provided. If the answer was wrong, a hint was suggested and the trainee was asked to retry.
8. Assessment performance -- a posttest was given after a trainee used the program. The posttest can be seen in Appendix H.
9. Enhancing retention and transfer -- the program is available for review and reinforcement.

The User's Guide which is to accompany the disk can be seen in Appendix J.

Learning Activity Review

Once the program was completed, the designer conducted a peer review. Four librarians ran the program and they were encouraged to critically evaluate it. One librarian felt that more drill and practice was needed. Since we were all SME's of equal rank, the suggestion was discussed. The designer demonstrated the flow chart to the group and pointed out the branching and looping features which did in fact provide more review and testing at the behest of the learner operating the program. This had not been apparent to them when they ran through the program with no errors and without trying out the options to back up and review. The designer then demonstrated these features by re-running the program, after which the librarians agreed that more drills were unnecessary. They made no further suggestions for improving the program. No spelling or grammatical errors were detected at this time. The majority of them expressed approval and were of the opinion that the program, as is, was appropriate for use with the target audience.

Materials for Evaluation Produced

Five copies of the program disk and five copies of the User's Guide were produced. The likelihood of two or more

students using the program at the same time was small. Twenty copies were produced of the following:

1. Student personal data questionnaire
2. Student skills questionnaire
3. Job ranking questionnaire
4. Pretest
5. Entry Behaviors test
6. Posttest
7. Summative reaction questionnaire

Summary

In this phase, the learning activities of the CAI program were developed using Gagne's nine instructional events. The learning activities were designed so that the trainee could use the program without the intervention of a professional librarian. The program was reviewed by the designer's colleagues, all of whom believed it was ready for use. Evaluation materials were reproduced and adequate copies of the disk were made. All indicators pointed to the fact that we were ready for implementation.

CHAPTER 5

IMPLEMENTATION

Introduction

Designing a program must be something like writing a book or painting a picture. One is strongly tempted to keep improving the final product. The writer continues to polish a phrase here and there. The painter continues to cast a shadow here and an illuminating glow there. So too the designer of a program. Revising for improvement is unlimited. All of us strive for the perfect program. But there comes a time when one must compromise between the ideal and the reality. The program was working. It had been tested and revised. Programming errors were debugged. The one-on-one trials resulted in favorable response. A User's Guide was produced. Copies of the program were duplicated in sufficient quantity for distribution to department supervisors. They would help in the final evaluation of the program. It was time to deliver the instruction.

Materials for Implementation Reproduced

In programming the instructional unit, continuous revision was an integral part of the procedure. The

designer had attempted to use the Unison Draw program to create high quality graphics. It was a program on a separate disk which provided the capability to create fascinating shapes and forms. Some time was allocated to "draw" an attractive graphic for a particular unit. The Draw program was in monochrome. When an attempt was made to "capture" the graphic onto the related unit, the monochrome overwrote the colors in the border and header. Since border colors and headers were used to identify and unify the segments of each module, the choice was made not to use Unison Draw. Instead, the designer opted to use the graphic features of the Unison Authoring disk. Boxes and lines could be drawn in the text mode. A box was produced by coding the x,y coordinates of the upper right and lower left corners of the box. Lines too were made by coding the x,y coordinates of the endpoints of the line. In the graphics mode, circles and background patterns could be produced. In order to create a complex pattern of boxes and lines, a great number of coordinates had to be coded. This can be seen on the printed code in Appendix K.
When the graphic screens were satisfactorily integrated with the text, and when the program was running smoothly, the executive run file was copied from the Unison System disk to

the lesson disk. With that accomplished, the program could easily be accessed and activated. The user merely had to boot the computer with DOS and then, at the B prompt, type:

run Filbas

Instructional Delivery

There was no formal schedule set for delivering the instruction. The Chiropractic librarian was the first one to request the use of the program. In September 1988, she selected her full-time paraprofessional assistant to view the program. This assistant had been working for her for eight months. The assistant's reaction to the program made the designer aware that it was equally suitable for the full-time paraprofessional staff, a learner group that was not initially considered as part of the target audience. The assistant's response was very positive and she said that the learning which she gained from the program would be very helpful in her library routines. Since that first experience, the Chiropractic librarian has been using the program for her newly-hired student assistants.

In January 1989, the program was used with the newly-hired students in the Catalog Department. There were four new student assistants who were hired within a few days of each other. They were given basic orientation and were then

invited to use the program. Each one took about 30 minutes to complete the instruction. Their response too was very positive.

As more of the student assistants in the various departments made use of the program, its suitability for workers who have been on the job for a while was made apparent. In fact, there did not seem to be any difference between the newly-hired and the older workers in terms of instructional benefits. Two new student assistants who had prior library experience said that the program was very helpful to them notwithstanding their former library experience.

Instructional delivery, then, is not a one-time event. On the contrary, because the medium is CAI, the delivery of instruction appears to be ongoing.

Data Collection

Each individual who completed the instructional program was asked to fill in a post-learning questionnaire which was designed to provide data on learner reaction. The questionnaire was to be completed immediately following the instruction, when reactions were still clear and fresh. The subjects were asked to comment on the level of difficulty, the ease of following instructions, the sense of user control, the quality of the feedback and learning

results. The questionnaire was designed to provide additional data on the professional, academic or work status of the subjects, and their experience with computers. When the data was collated and analyzed, the designer looked for some correlation between those two factors and the reported reactions.

A posttest was given to the student assistants in the same format as the pretest. The results of this test were compared to those of the pretest. The results clearly indicated that cognitive learning was achieved. Whether or not the affective objectives were achieved would only be determined by observation on the job.

Summary

The program was implemented in the New York Institute of Technology library on the Old Westbury campus. After the revisions to the program, it was copied and materials were produced. The instruction was delivered to the library student assistants over the course of a year and the program is still in use. Data on learner reaction was collected and collated for analysis. Response was uniformly very favorable.

CHAPTER 6

EVALUATION

Introduction

Designers tend to fall in love with their own instructional programs. In many respects, it is a labor of love. They "carry" their program for a variable period of gestation, and at the end of that time, feel intimately bonded to the newborn. Which parents among us have ever believed our newborns to be other than the most beautiful, most intelligent and most promising? For that reason, the designer cannot be the sole person to test the program. Evaluation of the product must be undertaken by interested individuals with no emotional investment in the program. These individuals are typically members of the target population.

In this project, the designer used both formative and summative evaluations, the former of which led to several revisions that improved the instructional program's effectiveness. The summative stage of evaluation was conducted in several phases. Its purpose was to determine whether or not the instruction was effective, both from the learner's viewpoint and from objective standards. The transfer of learning to the job was considered. To support the transfer of new skills, more administrative staff

would have to be involved.

Formative Evaluation

The purpose of formative evaluation is to gather evaluative data during the development of instruction which can be used to improve the effectiveness of that instruction. Gagne & Briggs (1974) describe the three stages of instruction. They are one-on-one trials, group trials and pilot tests.

One-on-One Trials

Dick and Carey (1985) state that the purpose of one-on-one trials is to identify and remove the most obvious errors in instruction, and to obtain initial reactions to the content from the learners. It is important to establish rapport with the learners and to explain to them that the purpose of this trial is to find errors, typographical, mechanical or otherwise. They should be encouraged to be free to describe any difficulties that they may have with following directions or doing the drills. The whole process should be an interactive one. Comments and reactions should be recorded.

Because this instructional program is on a disk, the one-on-one trial was particularly applicable to this medium. During a three-week period, six one-on-one trials were

conducted. Three were part-time student assistants, and three were full-time library paraprofessionals. The improvements, corrections and revisions from the one-on-one trials were of the following types:

1. Programming
   a) Not enough opportunity for back-up to previous screens
   b) A screen not pausing for the user's keystroke
   c) Some color incompatibility when branching to another screen
2. Content
   a) Ambiguous statements
   b) Test directions
   c) Choice of feedback

The designer reprogrammed to provide back-up capabilities. The flash-by screen was corrected. Color was adjusted so that it was compatible with the screen to which it was branched. The language of instruction was reviewed. Where there was ambiguity, an effort was made for more clarity. In most cases, simpler was better. Feedback was refined so that it reinforced the new material being tested.

Small Group Trials

The purpose of small group trials is to determine the effectiveness of the revisions resulting from the one-on-one trials, and to identify any remaining problems that may not yet have been detected. Eight subjects were selected at

this stage, half of whom were library student assistants, while the other half were various other staff members. These trials were conducted in the same manner as the one-on-one trials. Learners were informed of the objectives of the trials and that their evaluation was solicited. Only one of the subjects experienced difficulty with one of the test directions. This area was again revised to eliminate any remaining barrier to understanding.

Pilot Test

This is the final stage of formative evaluation. The purpose is to determine if the first and second revisions were effective. Usually, a group of 20 to 30 individuals participate in a pilot test. Not having so large a number of subjects available, the designer, nevertheless, continued to test the program on the same members of the target group and on as many newly-hired assistants as became available. This was done as soon as possible after their initial orientation in a situation which closely resembled the actual conditions under which the program was intended to be used.

A posttest and post-learning questionnaire were administered following the small group trials and the pilot test. The data gathered from the posttest was compared with pretest data. The posttest used the same format as the pretest. There were eight exercises of four each in

alphabetic and alphanumeric sorting. Mean scores in each of the two areas were compared. The expectation was that the students would score lower in filing by call number. But there was no evidence that the students fared worse in either one of them. The comparative results of the pretest and posttest are summarized in Table 5.

Table 5

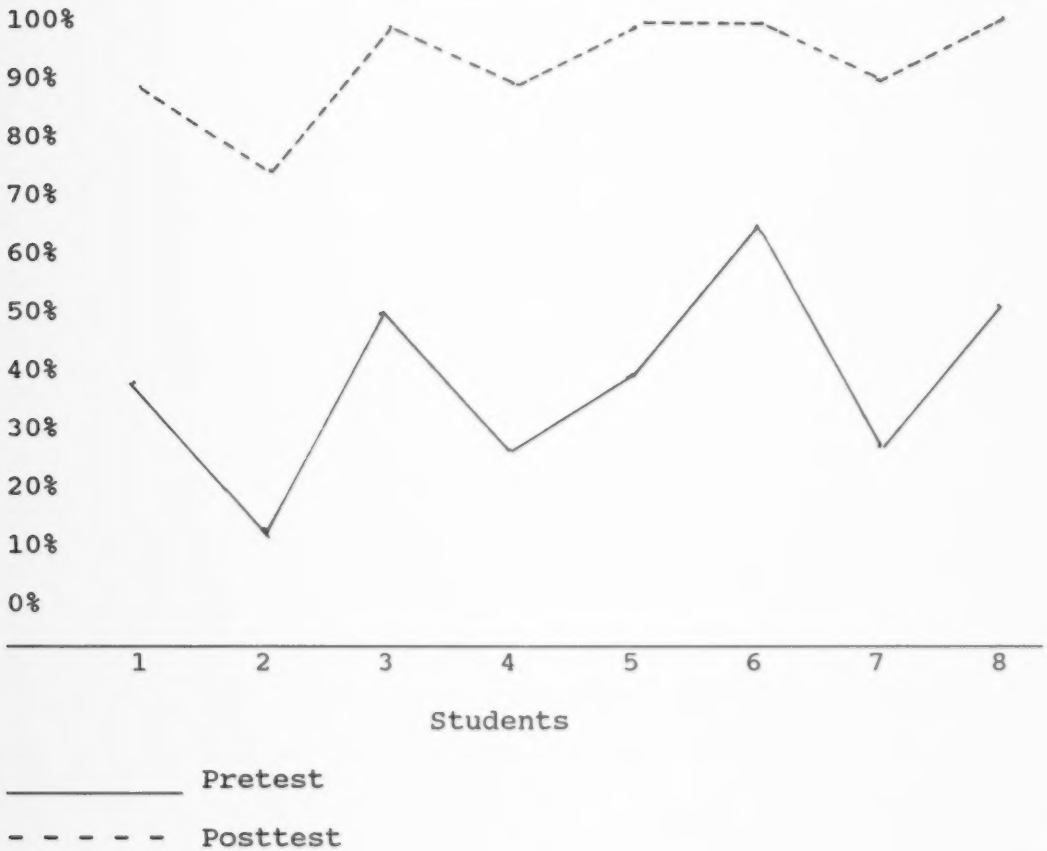
Results of the Pretest and Posttest

Student	Pretest Right	Wrong	Scores	Posttest Right	Wrong	Scores
1	3	5	40%	7	1	88%
2	1	7	13%	6	2	75%
3	4	4	50%	8	0	100%
4	2	6	25%	7	1	88%
5	3	5	38%	8	0	100%
6	5	3	63%	8	0	100%
7	2	6	25%	7	1	88%
8	4	4	50%	8	0	100%
Total	24	40		59	5	
Mean Scores			37.5%			92%

Pretest scores were 38%; 13%; 50%; 25%; 38%; 63%; 25%; 50%. Posttest scores were 88%; 75%; 100%; 88%; 100%; 100%; 88%; 100%. The percentage rate of improvement in the posttest scores equalled 54.5%. The comparative results are graphically illustrated in Figure 1.

Figure 1

Comparison of Pretest and Posttest Scores



Summative Evaluation

Was it all worth it? In the summative phase of evaluation, this is the question which must be answered. The task of the trainer at this point is to determine whether the instruction was effective. When training is intended to achieve long-term results, the final verdict cannot always be determined at once. In this project, the instruction was intended both for short-term and long-term improvement. In terms of the former, some very decisive conclusions resulted from the summative evaluation. However, the long-term goal of error-free performance remains an objective yet to be realized. This phase of evaluation will continue well beyond the parameters of this project.

The four phases of summative evaluation were described by Kirkpatrick (1987). They are: reaction, learning, behavior, results.

Reaction

This phase has been defined simply as how well the trainees liked the program. In conducting an evaluation in terms of reaction, the designer used Kirkpatrick's guidelines in formatting the questionnaire. Those guidelines were:

1. Determine what you want to find out
2. Provide space for additional comments

3. Design the forms so that the reactions can be tabulated
4. Obtain honest reactions by making the forms anonymous
5. Encourage additional comments not covered by the questions

The questions on the post-learning questionnaire which measured reaction were:

1. Ease of following instructions
2. Sense of control by user
3. Level of difficulty
4. Quality of feedback

Each question had five ranking orders. The language varied according to the context of the question. Ranking orders went from poor to excellent, nice and easy to too hard, inadequate to excellent. In the interests of brevity, they will all be represented by numbers 1 to 5, with one representing the lowest satisfaction and five representing the highest.

The post-learning questionnaire was administered to the original eight students as well as to new incoming trainees who were not present for the formative evaluation. Fourteen questionnaires were tabulated. The results are shown in Table 6.

Table 6

Results of Post-Learning Questionnaire

	Reaction				
Ease of following directions	10	4			
Sense of control by user	8	6			
Level of difficulty	12	1	1		
Quality of feedback	9	5			
	5	4	3	2	1
	Ranking Orders				

Only one comment was written in the spaces provided in each of these categories. That comment was under feedback. In the trainee's own words, he said that it was adequate only if the user is good in his grasping power. The last item in the questionnaire was labelled "additional comments." That was the space that most of the trainees used to express their reactions.

In the trainees' own words, some typical comments were:

1. Program taught a basic lesson clearly without extraneous information. Was colorful, quick and easy to use.
2. Worked in a library before, but found this a good review.
3. Very good instructional tool for teaching new student aides.
4. Every incoming freshman should use this program.
5. Very useful program. Nice and easy.
6. Liked graphics and color.
7. Attractive, interesting format which lends itself to learning a hitherto unknown aspect of library.
8. I'm very impressed.

Kirkpatrick (1987) cautioned that even when reactions are favorable, the designer, although having the right to feel proud, should also feel humble, since there is no real assurance that the learning will have far-reaching results.

Learning

Favorable reactions, pleasing as they may be, do not guarantee learning. Included in the post-learning questionnaire was one segment in which the trainees themselves were asked to rate the learning results.

The gradations were from poor to excellent. The distribution is illustrated in Table 7.

Table 7

Trainees' Evaluation of Learning Results

Poor	Fair	Good	Very Good	Excellent
0	0	1	6	7

The trainees' evaluation was clearly supported by the posttest scores. Table 8 illustrates a before-and-after comparison of pretest and posttest scores.

Table 8

Before and After Comparison

Student	Pretest	Posttest
1	38%	88%
2	13%	75%
3	50%	100%
4	25%	88%
5	38%	100%
6	63%	100%
7	25%	88%
8	50%	100%

The substantial improvement of each student's score indicated that the learning skills were achieved.

Behavior

Kirkpatrick (1987) lists five requirements for change in behavior to occur. They are:

1. Desire to change
2. Know-how of what to do and how to do it
3. The right job climate
4. Help in applying the lesson
5. Rewards for changing behavior

The CAI in the affective domain attempted to effect the first requirement. Motivating the learner was an essential part of the program design. The second requirement was met by the cognitive learning which included a knowledge and application of filing skills that were proven to have been accomplished. Requirements 3, 4 and 5 depend upon the individual department's supervisor. The CAI program cannot stand alone. Follow-up instruction, learning transfer and positive reinforcement are crucial steps in the whole process. It is for this reason that supervisors in many organizations are being included in the training project, sometimes simply as observers. If they are expected to follow through on the training, management will have to recognize their role in the total process and include them as members of the training team.

Results

The last stage of Kirkpatrick's evaluation is difficult to assess. Results can be expressed as reduced turnover, reduced costs, improved efficiency, reduction in grievances, rise in quality and quantity of production, and improved morale.

One of the first objectives of this program was to reduce the cost of the unavailability of valuable books because of misfiling. That cost can be material as well as monetary. Associated with this cost too is the loss of professional time in searching and not finding records in their expected locations. Prior to training, a review was made of 100 volumes in the computer science section of the QA range. Eleven misplaced volumes were found. Three weeks after training, the same sample revealed five errors per 100. Although this performance is not error-free, it represents a 50.5% improvement over the pre-training error rate. Last, but not least is the needless waste of ordeing unwanted books because the searcher lacked the searching skills needed to confirm that the library already held that item. Prior to training, at least two titles out of 500 per month were ordered without knowing that the library held those titles. In the five months following training, the number of unneeded books was reduced to 1 in 2500. This performance, too, is not error-free,

but it represents a 90% improvement over the prior error rate. Since one title is ordered for multiple branches, and some may be multi-volume sets, this improvement represents a considerable saving in dollars.

Four supervisors were asked to observe students' post-training behavior on the job in terms of commitment to excellence. They all agreed that the assistants were more serious and more confident in the performance of their tasks.

There is no doubt that correct filing and searching results in great savings. There is also no doubt that correct filing improves the efficiency of all of the library's operations, including those that affect the user. Users' grievances are undoubtedly reduced when the books they are seeking are located at their correct addresses on the shelves. The impact of an orderly arrangement on staff and patron morale may not be absolutely measurable, but that there is such an impact cannot be denied.

High turnover will remain a constant aspect of the trainees' employment since they are all college students who work part time while they study.

In summary, there was no reduction in turnover. But there were improvements in reduced costs, greater efficiency, reduction in grievances, quality and quantity of production and in user and staff morale. These

results, although not error-free, were substantial enough so that this level of performance may be an achievable long-term objective.

Learning Transfer

The transfer of learning from the instructional setting to the workplace can be as variable as work and corporate environments tend to be. The trainer feels very much in control of the learning events during the training process. However, the work environment may not be as controllable. What strategies can the designer undertake to assure that the efforts expended in training show long-term results? According to Broad (1982), the professional trainer should invest more energy in developing management support for training back on the job. In a research study she completed, she identified five actions that management can take to support the transfer of training to the job. They are:

1) Upper management involvement
2) Pretraining preparation
3) Support during training
4) Job linkage
5) Follow-up

The first category of action involves top level management. Their actions should ideally include participation in training, allocation of resources and incorportion of

training outcomes into the organizational structure. Pretraining Preparation includes actions by managers and supervisors of the trainees. They should become active participants in the instructional design and development. Support During Training is given by managers and supervisors to maintain the ties between the trainees and the job during the training program. Job Linkage is the category in which managers and supervisors facilitate the reentry of the trainee into the workplace. Follow-up includes the actions and instructional strategies of management and supervisors that reinforce the skills acquired during the training. According to Broad's study, the Job Linkage and Follow-up categories occur much less frequently than the other three.

With organizations varying so greatly in the dynamics of their structure, not every training professional, including this designer, is able to involve the various levels of management. But there were many actions that she herself has taken in order to facilitate learning transfer. Some of these actions included:

1) Meeting regularly with trainees to discuss their new knowledge and skills, and how to transfer them to the job.
2) Giving trainees relevant job aids, i.e. a printed summary of the rules in a convenient location.
3) Offering reinforcement and recognition to trainees

who were successful in transferring their new skills to the job.

4) Encouraging trainees to seek help from and offer help to their fellow trainees.
5) Developing a refresher course.
6) Developing an advanced course to present more sophisticated skills.

Summary

Formative and summative evaluations were conducted. During the formative evaluation, one-on-one and small group trials were conducted as well as a pilot test. The trials resulted in several revisions, both in the programming and in the content of the CAI unit. Pretest and posttest results were compared. The comparison proved the effectiveness of the program.

During the summative evaluation, results from the post-learning questionnaire were used to illustrate the reactions, learning, behavior and results of the training. The reactions were very favorable, and a comparison of pretest and posttest scores illustrated that learning did occur. Some aspects of behavior were affected by the instruction, but others were within the supervisor's sphere of influence. The short-term results of the instruction were easy to identify, but long-term results are difficult to estimate. Most of the instructional objectives were realized.

CHAPTER 7

SUMMARY AND RECOMMENDATIONS

Introduction

This chapter will close the circle on Filing Basics. The project herein described will be summarized as will the instructional technology used in designing it. Recommendations will be made for how its use can be maximized in the library. Projections about the future use of CAI will be made.

Methods and Procedures Used

This project was designed according to the Interservice Model of Instructional Systems Design. This model includes five elements: analysis, design, development, implementation and evaluation.

The Unison authoring language was the vehicle with which the CAI was programmed. The program consists of three modules:

1) General Principles
2) Filing by Title
3) Filing by Call Number

These three modules made up the main menu. Users were free to choose the sequence. Within each module, there were four

or five unit lessons. Branching went from unit lesson to unit lesson and between modules. At the end of each lesson, the user had the following options:

1) continue to next lesson
2) review current lesson
3) return to main menu
4) exit

Methods of instruction incorporated tutorial presentations, drill and practice, feedback and reinforcement. To find where a permanent copy of the disk is on file, see Appendix L.

Analysis

The need for a training program was determined by the large number of incorrectly shelved books and misfiled items. The problem was identified as a twofold one -- the library assistants did not know the rules of filing and they did not assign a high priority to them. A task analysis divided the filing tasks into two components -- alphabetical and alphanumerical filing. The target population was analyzed. They were all college students, but they had various educational levels and were from various countries of origin. The medium selected was CAI. A literature review revealed that no such program had yet been reported.

Design

Learning objectives were formulated and entry behaviors were identified. The objectives were both in the cognitive and affective domains. They were grouped and sequenced. A flow diagram charted the three main sequences and the branching and looping that would occur depending on student response. The three modules consisted of 3 to 4 subunits. A pretest was administered which confirmed the learning objectives. A posttest measured the learning results following the use of the program. The program used the Unison authoring language and the filing rules were based upon those of the ALA and the Library of Congress.

One module was developed at first which when tested, became the prototype for the remaining lessons. The learning activities coincided with Gagne's nine instructional events. The program was reviewed by colleagues and materials for evaluation were produced.

Implementation

The program worked to everyone's satisfaction and the time for delivering the instruction had come. One of the librarians requested the program for her full-time paraprofessional staff as well as her student assistants. Other newly-hired students used it as they joined the staff. Each time the program was used, data was collected using a

post-learning questionnaire and a posttest.

Evaluation

The designer used Gagne's three stages of formative evaluation -- one-on-one trials, small group trials and pilot tests. These led to several revisions to the program. Results from the pretest were compared to those of the posttest. The trainees' evaluation of learning results were confirmed by the posttest scores. The rate of improvement was 54.5%. In the summative evaluation, Kirkpatrick's four levels were used -- reaction, learning, behavior and results. Reaction and learning were easiest to measure. Many of the changes in behavior depend on environments controlled by the individual supervisors. Most of the results were easy to observe, but difficult to measure. Learning transfer was facilitated by the continuation of learning-related activities. They included meeting with the trainees, reinforcing and encouraging them in the application of their skills, and the preparation of job aids.

Conclusions

The goal of this project was to provide a training program for library student assistants who are responsible for filing and shelving tasks. The training was intended to teach those students the filing rules of the ALA and the

Library of Congress so that they could apply this knowledge to their jobs. These objectives have been largely achieved. But CAI is just one mode of instruction. To assure long-term effects, it is critical that follow-up supervision and instruction take place. Whether or not this occurs depends on the supervisors of each department.

One of the unexpected benefits of this project is that the professional librarians have been made aware of the misfiling problems and their attention has been focused on a hitherto unattended aspect of library organization. As librarians move into the age of automation, they tend to concentrate their energies on the more glamorous aspects of the electronic library. Some may be guilty of not seeing the forest for the trees. If this project has helped them recognize that a disorganzied library collection is as bad as no collection, and that it is a problem that no amount of automation can solve, then it will have been an added benefit, one no less important than the primary objectives.

Recommendations

1. Since the New York Institute of Technology library system is an integrated, multi-campus system, the CAI program should be made available for library student assistants in each of its branches.

2. Most academic libraries and some special libraries

use the Library of Congress classification and the ALA filing system. This CAI program may be suitable for use in any of those academic or special libraries.

3. The designer recommends that this CAI program should be augmented by a reference list containing a summary of the rules in a designated location for the use of those students who wish to refresh what they learned on the program disk.

4. Since color was used as an instructional aid, it is important to run this program with a color monitor. When viewed on a monochrome monitor, the program loses much of its integrity.

Concluding Statement

Most college students have a love affair with computers. For that reason, this designer felt very comfortable designing an instructional program in this medium. In truth, her comfort level with the medium may also be due to the fact that she shares those same feelings with the students. It was a labor of love.

From a technology point of view, the use of computers for educational purposes is still in its infancy. Educators and trainers are experimenting with many different applications of computer technology. College courses are

now being offered via teleconferencing networks. The questions posed are not whether to use this technology, but how to use it to the best advantage of the student.

Unison proved to be a very flexible authoring language, one which allowed the designer complete control over the lessons she produced. There is no doubt that the more sophisticated authoring languages of the future will make better instruction possible. Whatever the future brings, it appears certain that computers and education will be associated with each other for a long time to come.

APPENDIX A

Pretest and Personal Data Questionnaire

Pretest

PART I

1. This call number is made up of letters, numbers and decimals. Separate the call number into those components.

HF5548.8
.A72
1983

letters _____

numbers _____

decimals _____

PART II

Arrange these call numbers in filing order. Write the letters associated with then in the spaces below:

1. a. HV5801 .U53 b. HV5801 .U525 c. HV5801 .U5

1. ___ 2. ___ 3. ___

2. a. Z678.93 .M53L5 b. Z678.93 .M53D48 c. Z678.9 .K36

1. ___ 2. ___ 3. ___

3. a. TK5102.5 .P658 b. TK5102.5 .B44 c. TK5102.5 .P654

1. ___ 2. ___ 3. ___

PART III

Arrange these titles in alphabetical order. Write the letters associated with the titles in the spaces below:

1. a. The winds of war
   b. Windmills
   c. Wines for dining

   1. ___ 2. ___ 3. ___

2. a. The days of our lives
   b. A day at a time
   c. Day in and day out

   1. ___ 2. ___ 3. ___

3. a. Study skills
   b. Students at universities
   c. Studies of famous artists

   1. ___ 2. ___ 3. ___

4. a. An American tragedy

   b. Americans all

   c. America the beautiful

   1. ___ 2.___ 3. ___

PERSONAL DATA QUESTIONNAIRE

1. What is your status in college? Freshman _____

   Sophomore _____

   Junior _____

   Senior _____

   Graduate _____

2. What is your major? _____

3. In what country were you born? _____

4. In what country did you receive your education?

   Elementary _____

   High School _____

   College _____

5. Do you read for pleasure? _____

   If you do, in what language? _____

APPENDIX B

Job Ranking Questionnaire

QUESTIONNAIRE

ON A SCALE OF 1 TO 5, RANK YOUR JOB IN TERMS OF IMPORTANCE TO LIBRARY USERS.

1. not important _____
2. somewhat important _____
3. important _____
4. very important _____
5. extremely important _____

QUESTIONNAIRE

Results

ON A SCALE OF 1 TO 5, RANK YOUR JOB IN TERMS OF IMPORTANCE TO LIBRARY USERS.

1. not important _____
2. somewhat important _____
3. important 3
4. very important 5
5. extremely important _____

APPENDIX C

Tasks and Hierarchical Subskills

TASK

FILE BOOKS OR RECORDS

Steps Needed for Performing the Task

The student must:	The student must be able to:
1. Sort cards or records by alphabet.	1.0 State the general principles of filing. 1.0a Nothing files before something. 1.0b Character-by-character comparison 1.1 Disregard initial articles. 1.2 Treat the period, slash and hyphen as spaces.
2.0 Sort books or cards by call number.	2.0 State the general principles of filing. 2.0a Nothing files before something. 2.0b Character-by character comparison. 2.1 Divide the call number into letters, numbers and decimals. 2.2 Read and compare the call number of the book or card you are filing with the ones before and after.

APPENDIX D

Skills and Interests Questionnaire

SKILLS AND INTERESTS QUESTIONNAIRE

Check your skills and interests from the following list:

Typing _____ Mechanical _____

Word processing _____ Technological _____

Computer _____ Mathematical _____

Filing _____ Music _____

Reading _____ Art _____

SKILLS AND INTERESTS QUESTIONNAIRE

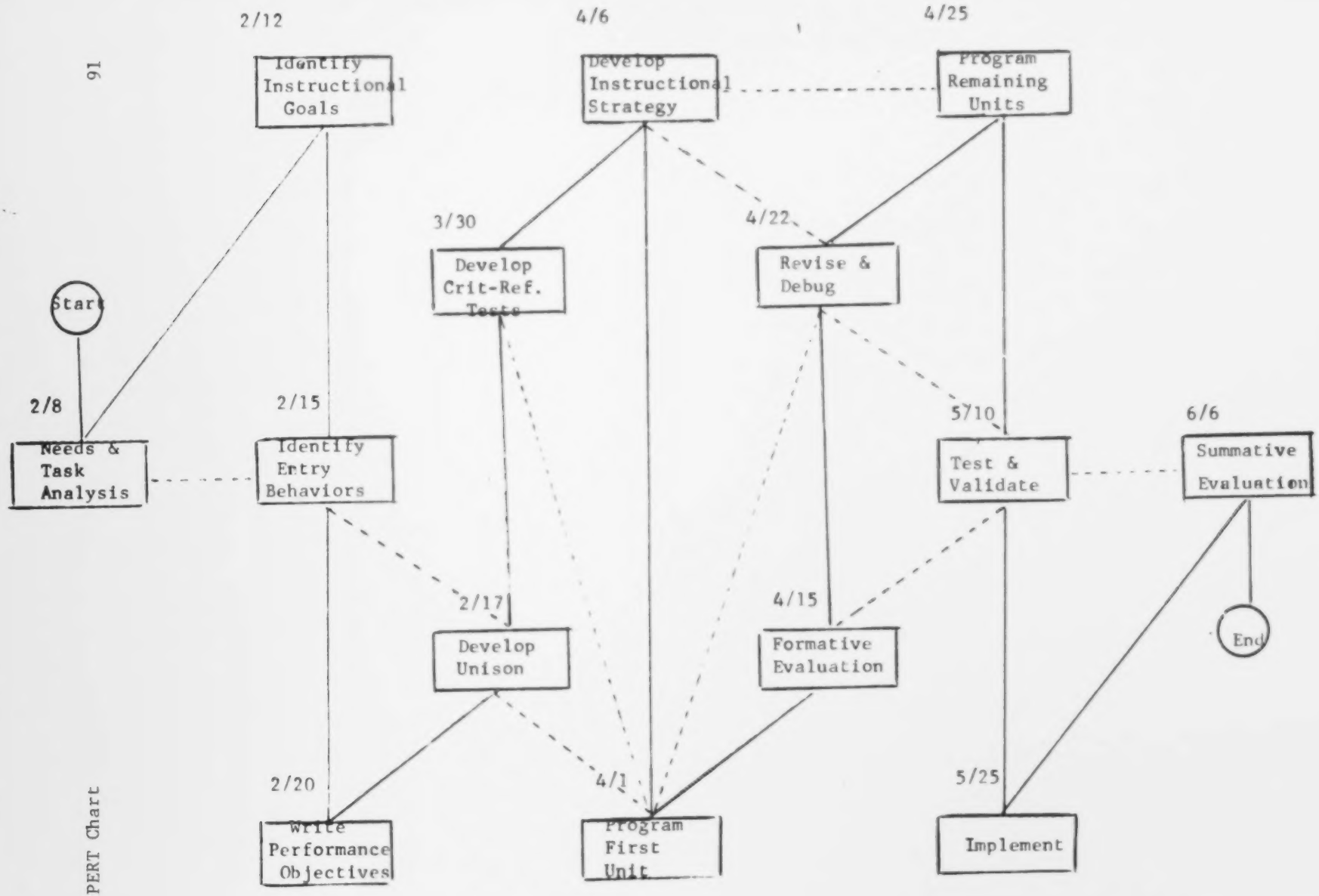
Check your skills and interests from the following list:

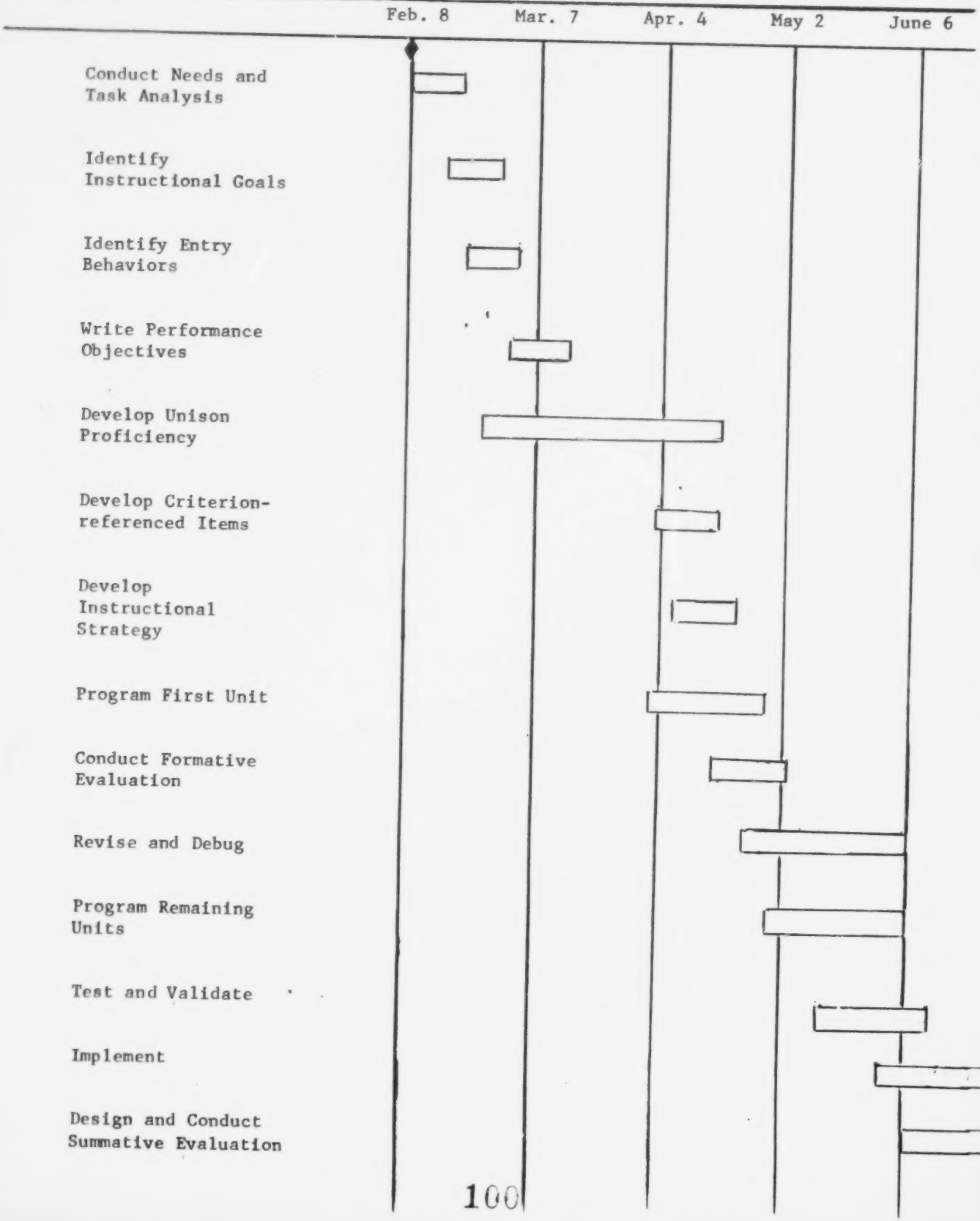
Typing	9	Mechanical	3
Word processing	5	Technological	4
Computer	10	Mathematical	8
Filing	1	Music	1
Reading	12	Art	1

Number of respondents: 12

APPENDIX E

PERT and GANTT Charts


2/12
4/6
4/25
91
Identify Instructional Goals
Develop Instructional Strategy
Program Remaining Units
3/30
4/22
Develop Crit-Ref. Tests
Revise & Debug
Start
2/8
2/15
5/10
6/6
Needs & Task Analysis
Identify Entry Behaviors
Test & Validate
Summative Evaluation
2/17
4/15
Develop Unison
Formative Evaluation
End
2/20
4/1
5/25
Write Performance Objectives
Program First Unit
Implement
PERT Chart


Feb. 8
Mar. 7
Apr. 4
May 2
June 6
Conduct Needs and Task Analysis
Identify Instructional Goals
Identify Entry Behaviors
Write Performance Objectives
Develop Unison Proficiency
Develop Criterion-referenced Items
Develop Instructional Strategy
Program First Unit
Conduct Formative Evaluation
Revise and Debug
Program Remaining Units
Test and Validate
Implement
Design and Conduct Summative Evaluation

APPENDIX F

Performance Objectives and Subskills

PERFORMANCE OBJECTIVES	SUBSKILLS
1.0 In the students' own words, they will state the two general principles of filing. The statement must include the two concepts: 1) nothing files before something 2) character-by-character comparison	1.0 State the two general principles of filing.
2.0 Given titles to file, the student will arrange them in alphabetical order. The order must be free of errors.	2.0 File by alphabet. 2.0a Disregard initial articles 2.0b Treat the period, slash and hyphen as spaces.
3.0 Given books to shelve, or cards to file, the student will arrange them in alphanumeric order. The order must be free of errors.	3.0 Divide the call number into its constituent parts. 3.0a Separate and list the letters. 3.0ab Separate and list the numerals. 3.0c Separate and list the decimals.
4.0 Given a scenario of how a user searches for a book, state the consequences to the user of misplaced books. The statement must include the steps the user is forced to take when not finding the book	4.0 State the consequences to the user of misplaced books. 4.0a Describe what happens when the books is not found where expected.

APPENDIX G

Summative Reaction Questionnaire

Please fill out this form by placing a check in the the space provided. If any of the written comments do not describe your feelings adequately, use the space for comments to express your own views.

Status

Student_____
Student-aide_____
Cataloging staff_____
Acquisitions staff_____
Public Services staff_____
Other_____

Experience with computers

None_____
Very little_____
Some_____
Much_____

Ease of following instructions

Poor_____
Fair_____
Good_____
Very good_____
Excellent_____

Comments_____
_____

Level of Difficulty

Too easy_____
Nice and easy_____
Average_____
Medium hard_____
Too hard_____

Comments_____
_____

Sense of Control by User

Poor_____
Fair_____
Good_____
Very good_____
Excellent_____

Comments_____
_____

Feedback Provided

Inadequate_____
Adequate_____
Very Good_____
Excellent_____

Comments_____
_____

Learning Results

Poor_____
Fair_____
Good_____
Very good_____
Excellent _____

Comments

Additional Comments

_____
_____
_____
_____
_____

Please fill out this form by placing a check in the the space provided. If any of the written comments do not describe your feelings adequately, use the space for comments to express your own views.

Status

Student_____
Student-aide 8
Cataloging staff 2
Acquisitions staff 1
Public Services staff 2
Other 1

Experience with computers

None 1
Very little 3
Some 6
Much 4

Ease of following instructions

Poor_____
Fair_____
Good_____
Very good 5
Excellent 9

Comments_____

Level of Difficulty

Too easy 1
Nice and easy 11
Average 2
Medium hard_____
Too hard_____

Comments_____

Sense of Control by User

Poor_____
Fair_____
Good 2
Very good 6
Excellent 6

Comments_____

Feedback Provided

Inadequate_____
Adequate 2
Very Good 5
Excellent 7

Comments_____

Learning Results

Poor_____
Fair_____
Good 1
Very good 6
Excellent 7

Comments

Additional Comments

APPENDIX H

Posttest

POSTTEST

PART I

1. This call number is made up of letters, numbers and decimals. Separate this call number into those components.

BF724.55
.A35A34

letters _____

numbers _____

decimals _____

PART II

Arrange these call numbers in filing order. Write the letter associated with them in the spaces below:

1. a. HF5718 .W64 1979
   b. HF5718.5 .H64
   c. HF5718.3 .H765

   1. ___ 2. ___ 3. ___

2. a. N6999 .R62K513
   b. N6999 .T39M54
   c. N6999 .M34Z45

   1. ___ 2. ___ 3. ___

3. a. QA76.76 .T5S64 b. QA76.76 .T48K36 c. QA76.8 .A15M38

1. ___ 2. ___ 3. ___

PART III

Arrange these titles in alphabetical order. Write the letter associated with the titles in the spaces below:

1. a. The boats of Cherbourg
   b. Boats
   c. Boating

   1. ___ 2. ___ 3. ___

2. a. UNESCO
   b. U.N.
   c. United we stand

   1. ___ 2. ___ 3. ___

3. a. Abraham Lincoln
   b. 1988 census
   c. Above and beyond

   1. ___ 2. ___ 3. ___

4. a. The life and times of Theodore Roosevelt

   b. L.I.F.S.A.

   c. The life cycle

   1. ___ 2. ___ 3. ___

APPENDIX I

Screen Designs

LESSON Files

UNIT

BORDER COLOR blue

103

F I L I N G B A S I C S

A computer-based training program
using the
Unison Authoring Language

Prepared by Mildred Arauco
MYIT
May 1988

Press Enter to continue

111

112

LESSON Filing

UNIT Filing

BORDERCOLOR

104

The filing system you will learn is used in the VVIT library.

It is based on the filing rules of the American Library Association and the Library of Congress.

104

LESSON Glenindex

UNIT

BORDERCOLOR green

105

GENERAL INDEX

a. General principles

b. Filing by title

c. Filing by call number

Select a topic by typing its letter.

115

116

105

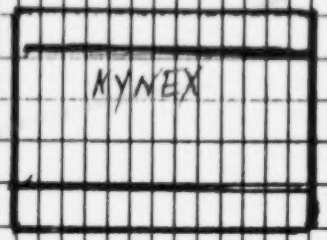
LESSON Graphics

UNIT

BORDERCOLOR red

106

(1) If you guess what these three items have in common?



To see if you guessed right, go to the next screen
Press Enter

117

118

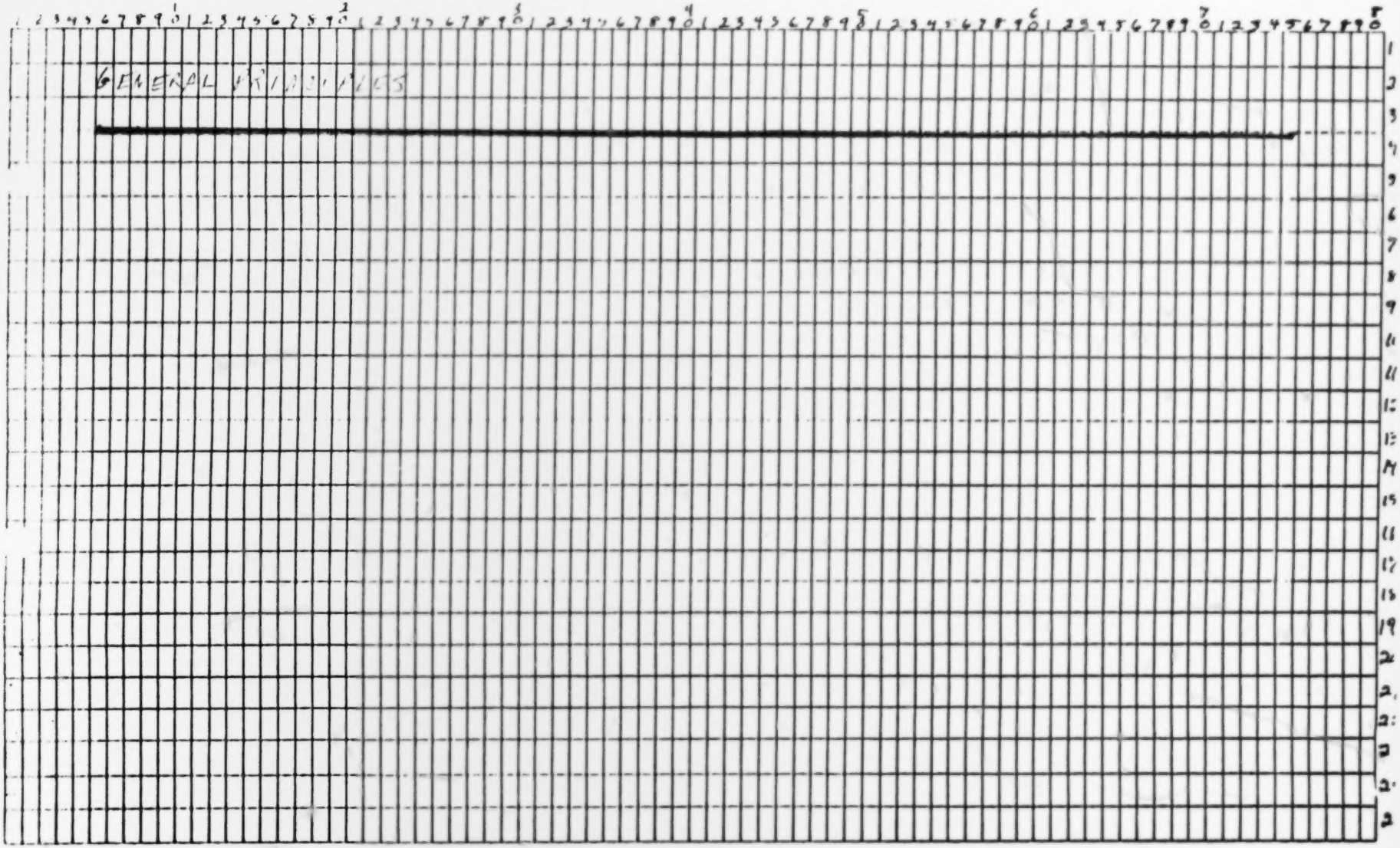
106

LESSON Einleitung

UNIT Lieder (Introduction)

BORDERCOLOR

107



LESSON Sentences

UNIT Spring

BORDERCOLOR red

GENERAL PRINCIPLES

What do the dictionary, telephone directory and the encyclopedia all have in common?

They are all in alphabetical order!

Are the entries in these items in 100% alphabetical order?

You bet!

Press Enter to continue

LESSON Sentence

UNIT Skiefil

BORDERCOLOR red

109

6th grade students

Can you imagine how frustrated you would feel if:

* The word you were looking up in the DICTIONARY was misfiled.

* The name you were looking up in the TELEPHONE DIRECTORY was misfiled.

* The book you were looking up in the LIBRARY was misfiled.

You would never be able to find them!!!

You would just conclude that these items were missing!!!

Now, let's look at the first of the 2 general principles, go to the next screen
Press Enter

LESSON Genius

UNIT General

BORDERCOLOR red

110

GENERAL PRINCIPLES

Here is the first of the two general principles of filing that we use in our library.

PRINCIPLE ONE

When filing, follow the principle of "nothing files before something."

EXAMPLE

Transportation

Transportation problems

Transportation problems in New York City.

Rest, Enter to continue

LESSON Sentence

UNIT Yesterday

BORDERCOLOR red

GENERAL PRINCIPLES

Are you ready for some practice?

Press Enter to continue for practice
Press F1 to review

LESSON Strategies

UNIT t2+1 (correct feedback)

BORDERCOLOR red

112

GENERAL KNOWLEDGE

A.

Art and beauty.

B.

Art and beauty in the Orient.

C.

Art.

Arrange flash cards in alpha order. Use the letters above each card in format xyz. (No commas). Then press Enter.

& cab

Error!

Press Enter to continue

112

113

LESSON Graphics

UNIT Unit 1 (incorrect feedback)

BORDERCOLOR red

GENERAL PRINCIPLES

<= wrong answer

Hint: Nothing files before something.
Press return and try again.
Press Enter to continue

LESSON Graphics

UNIT Project 1

BORDERCOLOR red

114

GENERAL PRINCIPLES

How do the designs appear in filing order.

3. File and Study in the Brief.

2. File and Study.

1. File.

Press Enter to continue

LESSON Genprinc

UNITT princ2

BORDERCOLOR red

115

GENERAL PRINCIPLES

You are now ready to learn the second general principle.

PRINCIPLE TWO

When filing, apply the principle of "character-by-character comparison."

To see how this principle is applied, go to the next screen.

Press Enter

LESSON Genprinc

UNIT Example

BORDERCOLOR red

116

GENERAL PRINCIPLES

EXAMPLE

1. London and Londoners.

2. London. Bridge.

3. London as it is today.

4. London Bridge

Compare entries 1 and 4.
(Spaces, commas and case
do not count).
The letters which are the same
are London and. Can you see
the differentiating letters?
To see if you guessed right,

Press any key.

137

138

116

LESSON 6 Graphics

UNIT example (1st overlay)

BORDERCOLOR red

117

GENERAL PRINCIPLES

EXAMPLE

1. London and Londoners.

2. London, Andrea.

3. London as it is today.

4 London Bridge.

The differentiating letters are the l in Londoners and the r in Andrea.

Now compare entries 2 and 3. The common letters are London a. Can you see which are the differentiating letters? To see if you guessed right,

Press any key

118

LESSON Storyline

UNIT example (1st overlay)

BORDERCOLOR red

GENERAL PRINCIPLES

EXAMPLE

1. London and Londoners.

2. London, Ancient.

3. London as it is today.

4. London Bridge.

The differentiating letters are the n in Andrea and the s in as.

Finally, compare entries 3 and 4. The differentiating letters are the a in as and the B in Bridge. By now, you can easily see the common letters.

Press any key to check if you're right.

LESSON Intro

UNIT example (and overlay)

BORDERCOLOR red

119

GENERAL PRINCIPLES

EXAMPLE

1. London and Londoners.

2. London, today.

3. London as it is today.

4. London Bridge.

Did you get it? the corners
letters are London.

Press Enter to continue

143

144

119

LESSON Genprinc

UNIT ready2

BORDERCOLOR red

120

GENERAL PRINCIPLES

Are you ready to practice what you just learned?

Press Enter to continue for practice.

Press F1 to review.

145

146

120

LESSON Capture

UNIT Test2 (correct feedback)

BORDERCOLOR red

121

Y-COORD IS MOUSE'S

A.

Numbers and letters.

B.

Number concepts.

C.

Number problems.

Arrange these cards in filing order. Use the letters above each card in format xyz. (No commas).
Then press Enter.

Abc

You got it right!

Press Enter to continue

121

LESSON Genpairs

UNIT Lists (correct feedback)

BORDERCOLOR red

122

GENERAL RULES

1. Always consider

Hint: Compare character-by-character.

Fix: retrieve and try again.

LESSON Review

UNIT review 2

BORDERCOLOR red

GENERAL PRINCIPLES

Here are the cards as arranged in correct filing order.

3. Numbers and letters.

2. Number problems.

1. Number concepts.

Press Enter to continue.

LESSON Indexing

UNIT Summary

BORDERCOLOR red

124

GENERAL PRINCIPLES

In this lesson, you learned two basic principles of filing:

1. Nothing files before something.

2. Character-by-character comparison.

CONGRATULATIONS UPON YOUR COMPLETION OF THIS LESSON!

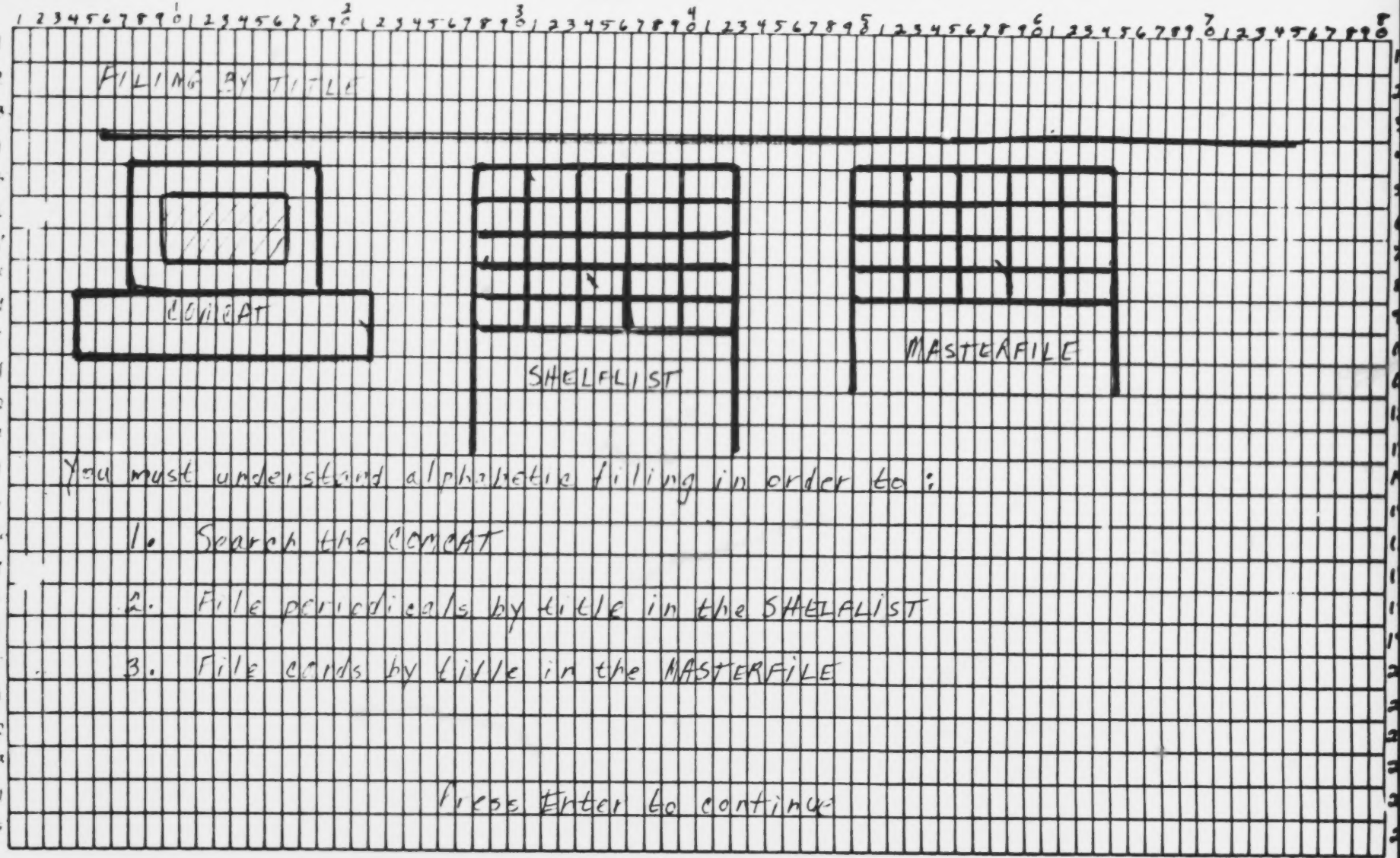
Press Enter to return to the general index.

LESSON Title

UNIT

BORDERCOLOR blue

125


FILING BY TITLE
CONCAT
SHELFLIST
MASTERFILE
You must understand alphabetic filing in order to:
1. Search the CONCAT
2. File periodicals by title in the SHELFLIST
3. File cards by title in the MASTERFILE
Please Enter to continue

155

156

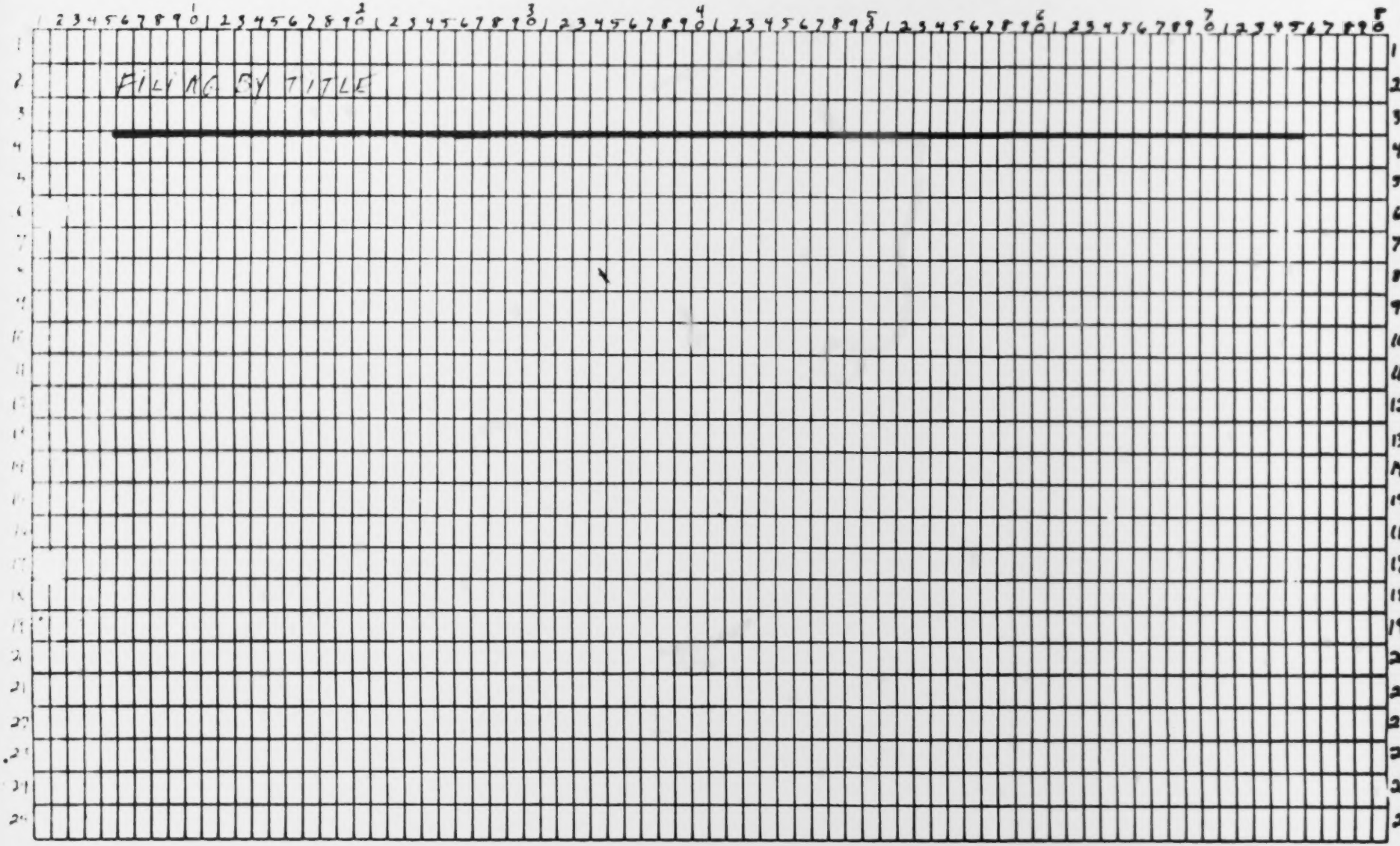
125

LESSON Title

UNIT Header 2 (subroutine)

BORDERCOLOR blue

126



126

LESSON Title

127 UNIT Number

BORDERCOLOR

FILING BY TITLE

This is the first of four simple rules of filing.

RULE ONE

When filing by title, disregard initial articles:

Day and night

A day in my life

The days of our years

Press Enter to continue

LESSON Title

BORDERCOLOR blue

UNIT titleexample

128

FILING BY TITLE

Here is another filing example showing initial articles disregarded.

The empathizers

The emperor

An emperor named Jones

Press Enter to continue for practice

LESSON Title

UNIT Tests (correct feedback)

BORDERCOLOR blue

129

FILING BY TITLE

A.

The Boys of Boy's Town.

B.

Boats.

C.

A book a day.

Arrange these cards in filing order. At the cursor, use the letters above each card in format xyz. Then press Enter.

cba

Very good!

Press Enter to continue

LESSON Title

UNIT tests (incorrect feedback)

BORDERCOLOR blue

130

FILING BY TITLE

Wrong answer

Hint: Disregard initial articles.
Press return and try again.
Press Enter to continue

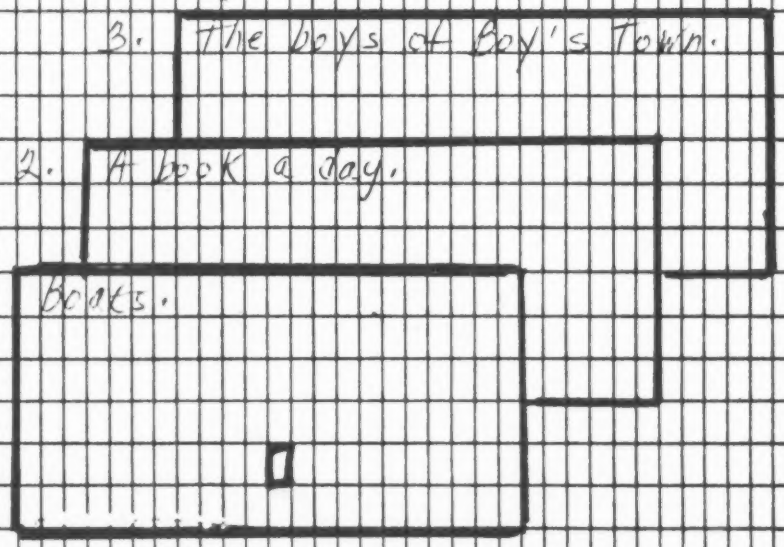
LESSON Title

BORDERCOLOR blue

131 UNIT projects

FILING BY TITLE

Here are the cards as arranged in correct filing order.



Here's what to continue to Rule 2

LESSON Title

BORDERCOLOR blue

132 UNIT rule 2

FILING BY TITLE

This is the second of four rules of filing.

RULE TWO

Spaces and their equivalents have equal filing value. That is, they are considered as spaces.

The equivalents include:

Dashes
Hyphens
Diagonal slashes
Periods

Press Enter to see an example

LESSON Title

UNIT Example

BORDERCOLOR Blue

*In future versions, all items in the window will be in true alphabetical order.

FILTER BY TITLE

ENTRIES

1. I.B.M.

2. I.L.

3. I.E.E.E.

4. IBM

5. IBM/VS

6. IBM Personal Computer

7. IBM/PC

8. IBM monographs

Compare entries 3 and 4.
I (period = space) E. comes before IB.

Remember spaces are nothing and nothing comes before something.

Press any key to continue

LESSON Title

UNIT example 2 (overlay)

BORDERCOLOR blue

134

FILING BY TITLE

Compare entries 1 and 8.

IBFW(slash = space) I...

comes before IBFW m...

Press Enter to continue

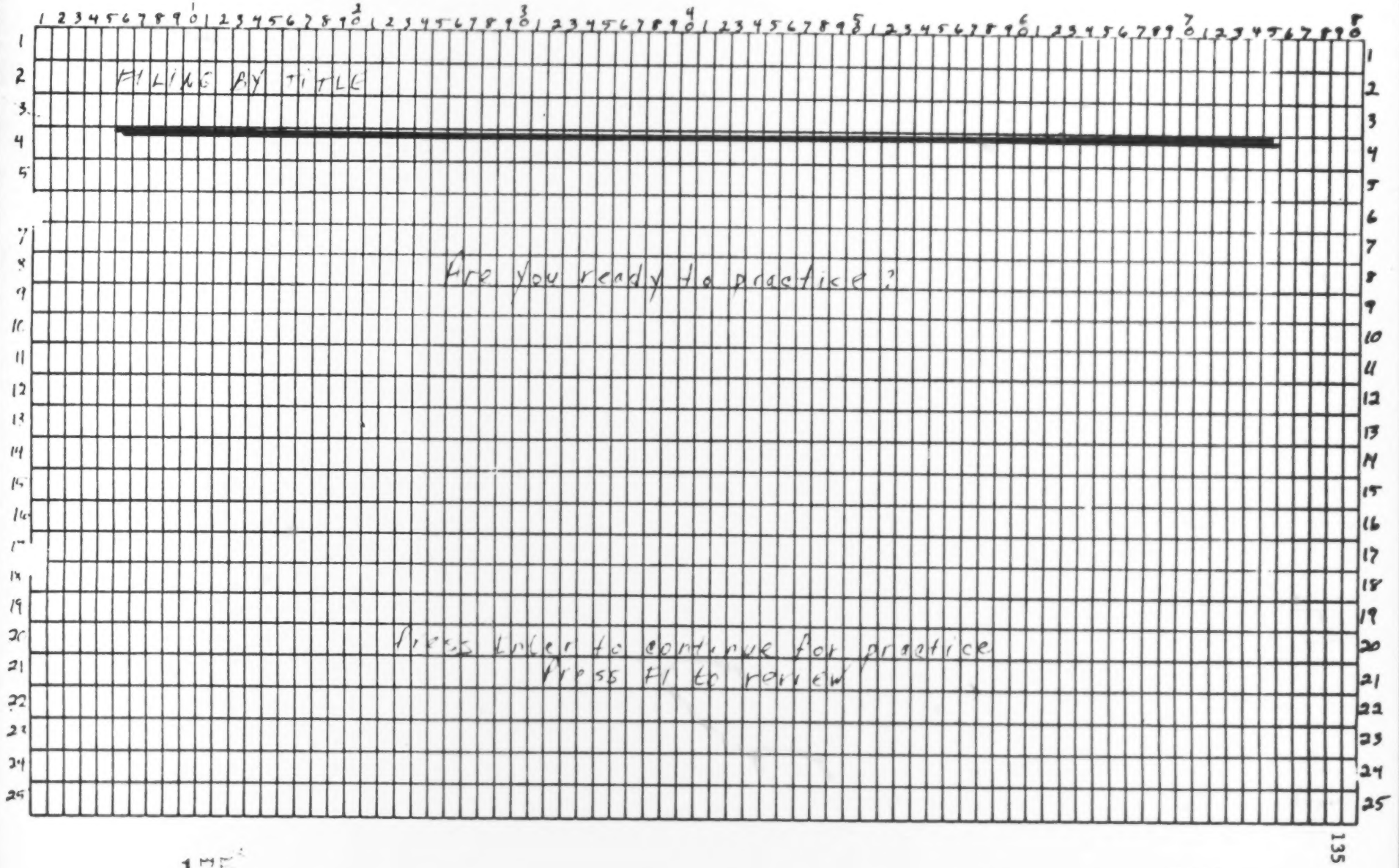
134

LESSON Title

UNIT ready 3

BORDERCOLOR blue

135



LESSON 12c

UNIT test4 (correct feedback)

BORDERCOLOR blue

136

FILING BY TITLE

A.

OAU treaty.

B.

OAU/strc.

C.

O.A.U.

Arrange these cards in filing order.
Use the letters above each card in
form xyz. Then press Enter.

Going

Forest

Press Enter

136

LESSON Title

UNIT Testy (incorrect feedback)

BORDERCOLOR Blue

137

FILING BY TITLE

Wrong answer

Hint: Slashes and periods are treated as spaces.
Please Enter and try again.

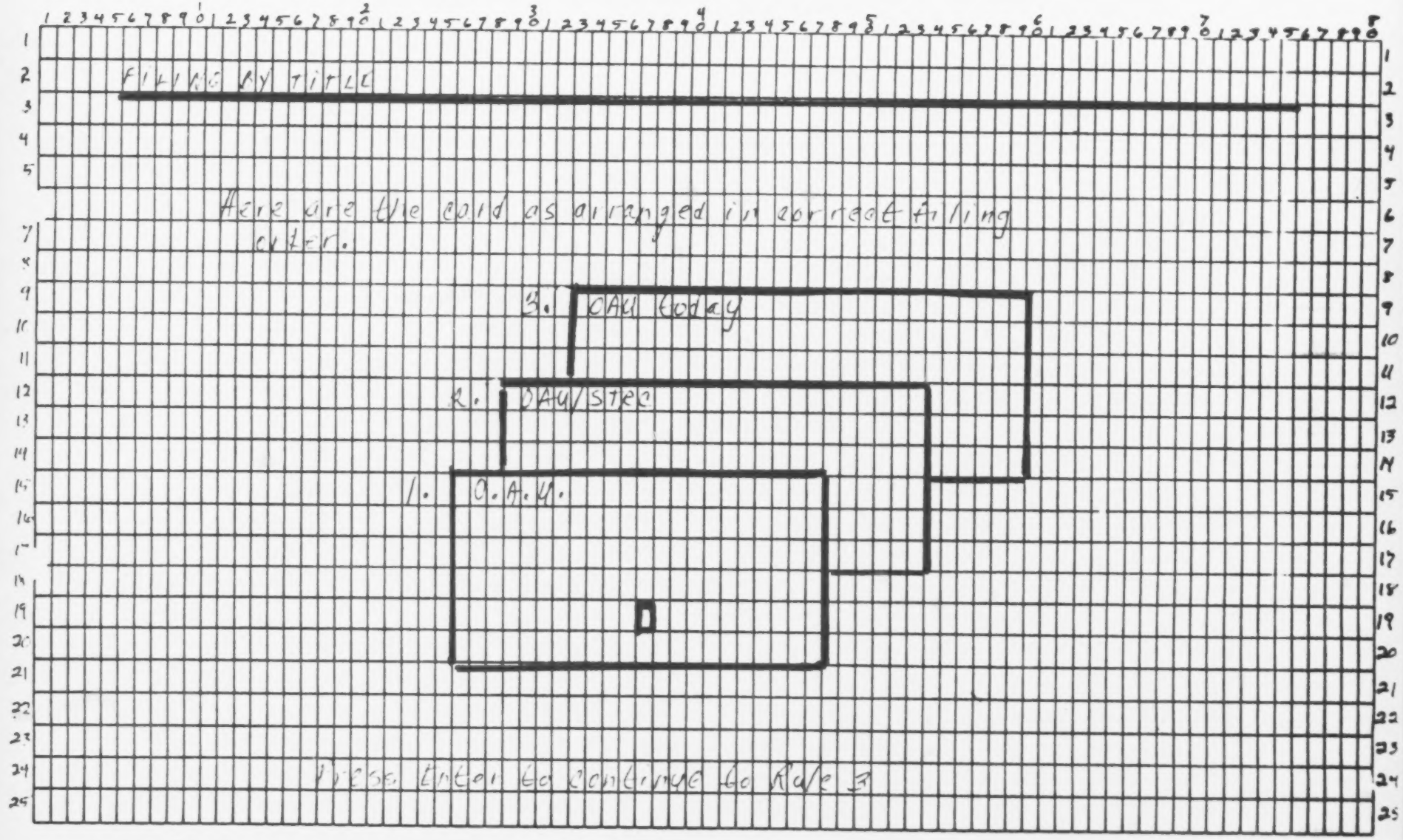
Miss Enter

137

LESSON Title

BORDERCOLOR Blue

138 UNIT Eleventh


FILING BY TITLE
Here are the cold as arranged in correct filing order.
3. CALL today
2. DAY/STER
1. G.A.M.
D
Please turn to continue to Rule 3

LESSON Title

UNIT Rule 3

BORDERCOLOR blue

139

FILING BY TITLE

This is the third of four rules of filing in this lesson.

RULE THREE

All character strings beginning with numerals file before character strings beginning with letters.

EXAMPLE

26 ways of looking at man

44 Irish short stories

A priori arguments

Phoenix

~~XX~~ The numerals file in numerical order before the letter A.

Press Enter

139

LESSON title

UNIT ready4

BORDERCOLOR blue

140

FILING BY TITLE

Ready for practice ?

Press Enter to continue for practice
Press F1 for review

140

LESSON Test

UNIT tests (correct feedback)

BORDERCOLOR blue

141

FILING BY TITLE

A.

American journal of metals.

B.

Advances in medicine.

C.

1980 census.

Arrange these cards in filing order. Use the letters above each card in format xyz. Then press Enter.

Sorry

Incorrect!

Press Enter to continue

LESSON 14th.

UNIT tests (incorrect feedback)

BORDERCOLOR blue

142

FILING BY TITLE

Editing Mistakes

Hint: Numbers file before the first letter.

Press Return and try again.

Press Enter to continue

142

LESSON Title

UNIT Review-5

BORDERCOLOR blue

143

FILING BY TITLE

Here are the cards as arranged in correct filing order.

3. American journal of metals.

2. Advances in medicine.

1. Best sermons.

Press Enter for the final rule.

LESSON Filing by title

UNIT picks of (correct feedback

BORDERCOLOR red

144

FILING BY TITLE

The ampersand (&) is filed as its spelled out equivalent.

Applying this rule, arrange these entries in filing order.

a. A and P Company

b. A & B poetry

c. A and G motor reticles

d. A & O International

Use the letters next to the entries.
At the cursor, write your answer in format wxyz.

&bcda

Excellent!

Press Enter to review.

193

144

194

LESSON Title

UNIT rules (incorrect feedback

BORDERCOLOR blue

145

VIEWING BY TITLE

During answer

Hint: Treat the ampersand as "and"

Press Return and try again.

Press Enter to review.

195

196

145

LESSON Title

UNIT Summary2

BORDERCOLOR blue

146

FILING BY TITLE

In this lesson, you learned the following rules:

1. Disregard initial articles, i.e. a, an, the

2. Spaces and their equivalents have equal filing values, i.e. spaces, dashes, hyphens, diagonal slashes and periods.

3. Character strings beginning with numerals file before character strings beginning with letters.

4. The ampersand (&) is filed as its spelled out equivalent.

CONGRATULATIONS UPON COMPLETION OF THIS LESSON ! !

Press Enter to return to the General Index

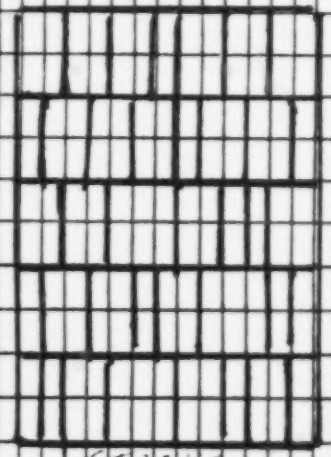
146

LESSON Callno BORDERCOLOR magenta

UNIT

147

FILING BY CALL NUMBER



You must understand the mechanics of filing in order to:

1. Locate a book in the stacks.
2. Shelve and reshelve books.
3. File cards by call number in the shelflist.

The call number is the address of the book on the shelves. What happens when a book is mis-shelved?

Press Enter to see the scenario.

LESSON callno

UNIT generic

BORDERCOLOR magenta

148

FILING BY CALL NUMBER

* * the user has found the book he wants in the
correct and has written down the call number.

* * he looks for the book on the shelf.

* * when it is not there, he asks at the desk if
it is circulating.

* * The staff tells him it is not out.

* * He assumes the book is misplaced or lost.

* * In any case, he does not know where or how
it can be located.

* * Neither does anybody else on the library staff.

frees time to do anything

148

LESSON calc

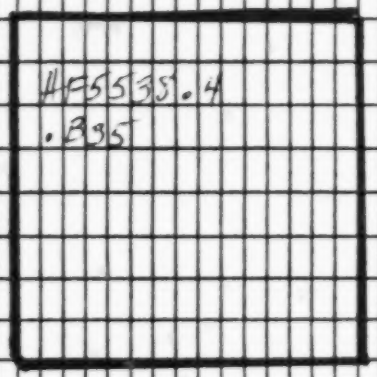
UNIT calc2

BORDERCOLOR magenta

149

FILING BY CALL NUMBER

The call number is alphanumeric. It consists of letters, numerals and decimals.



Remember that in filing by call number, we use the general principles of filing:

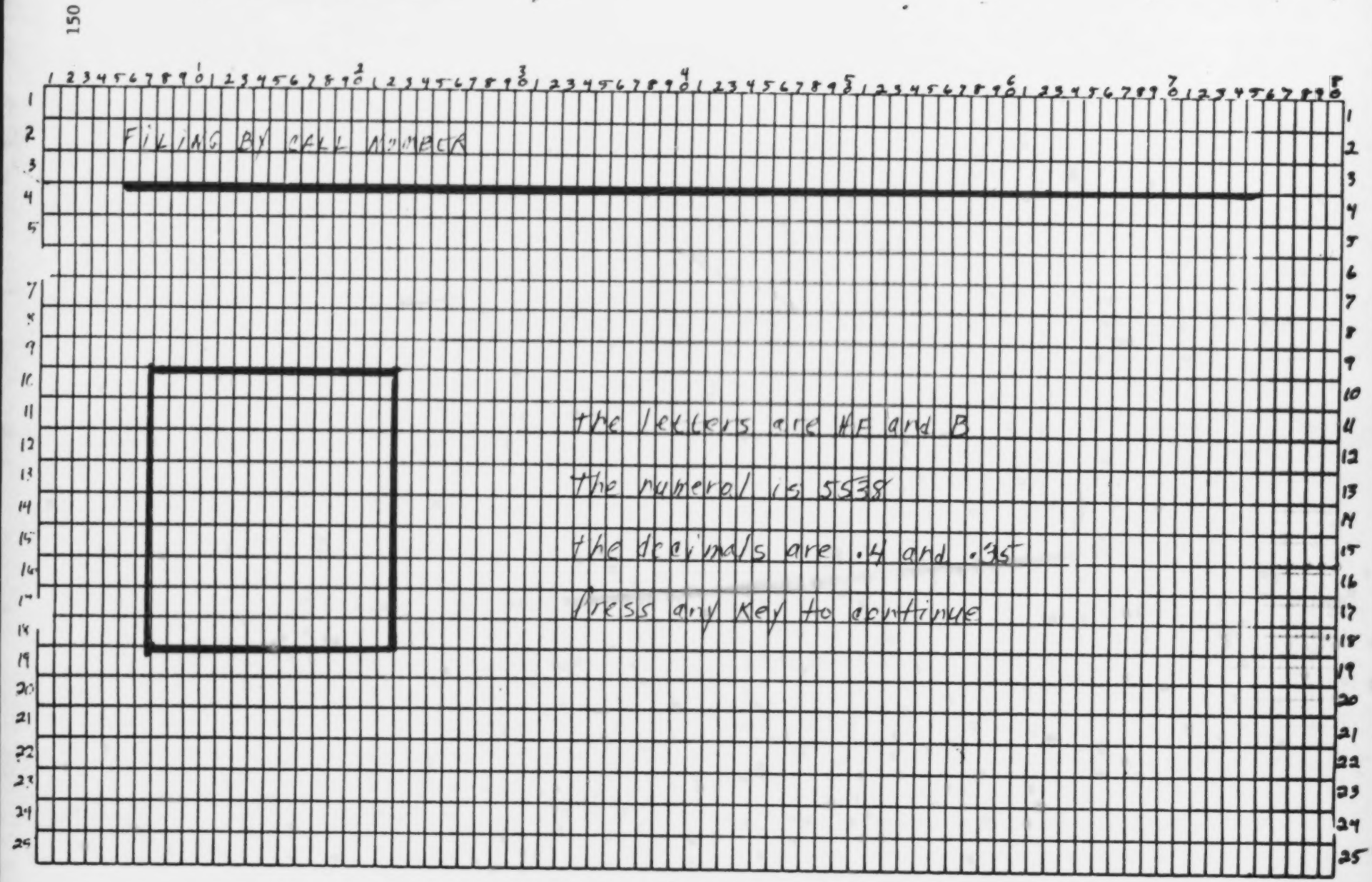
1. Nothing files before something
2. Character-by-character comparison.

Press any key to continue

LESSON cabins

UNIT cabin2 (second overlay)

BORDERCOLOR negative



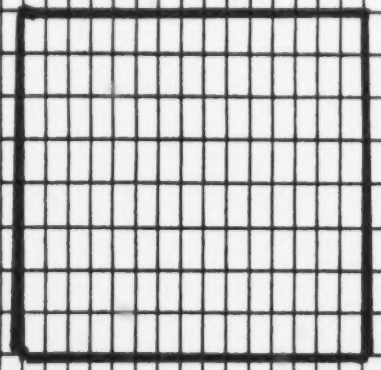
LESSON callno

UNIT call2 (third overlay)

BORDERCOLOR magenta

151

FILING BY CALL NUMBER



Let us talk about the decimal part of the number.

Look at the first line of the number. HF5538.4 would file after HF5538.38 because decimal .38 is an expansion of decimal .3

Press any key to continue

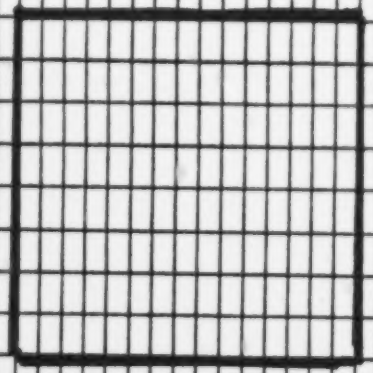
LESSON call no

UNIT call2 (fourth overlay)

BORDERCOLOR magenta

152

FILING BY CALL NUMBER



Now look at the second line of the number.

.35 would file before .34 because decimal .35 is an expansion of .3 and .3 ---- expanded to any number of spaces would always file before .4

Press Enter to continue

LESSON Filing

UNIT Unit 3

BORDERCOLOR magenta

153

FILING BY CALL NUMBER

Here are some call numbers filed in the correct order.

1. DS63.2
.R9L32

2. DS63.2
.R9L4

3. HE5549.5
.B39E86

4. HE5549.5
.B39E9

5. JK274
.P813

6. JK274
.P9

Press Enter to continue

153

LESSON callno

UNIT ready5

BORDERCOLOR magenta

154

FILING BY CALL NUMBER

Are you ready to file some cards?

Or to shelve some books?

Press Enter to continue for practice
Press F1 to review

LESSON callno

UNIT test6 (correct feedback)

BORDERCOLOR magenta

155

FILING BY CALL NUMBER

A. TK454 .F468 □

B. TL1065 .S9 □

C. TL1065 .S86 □

D. TR454 .F5 □

Arrange these call numbers in filing order.

At the cursor, write the letters next to each

card in format wxyz.

kadeb

Great!

Press Enter to continue

215

216

155

LESSON callno

UNIT test6 (incorrect feedback)

BORDERCOLOR magenta

156

FILING BY CALL NUMBER

4

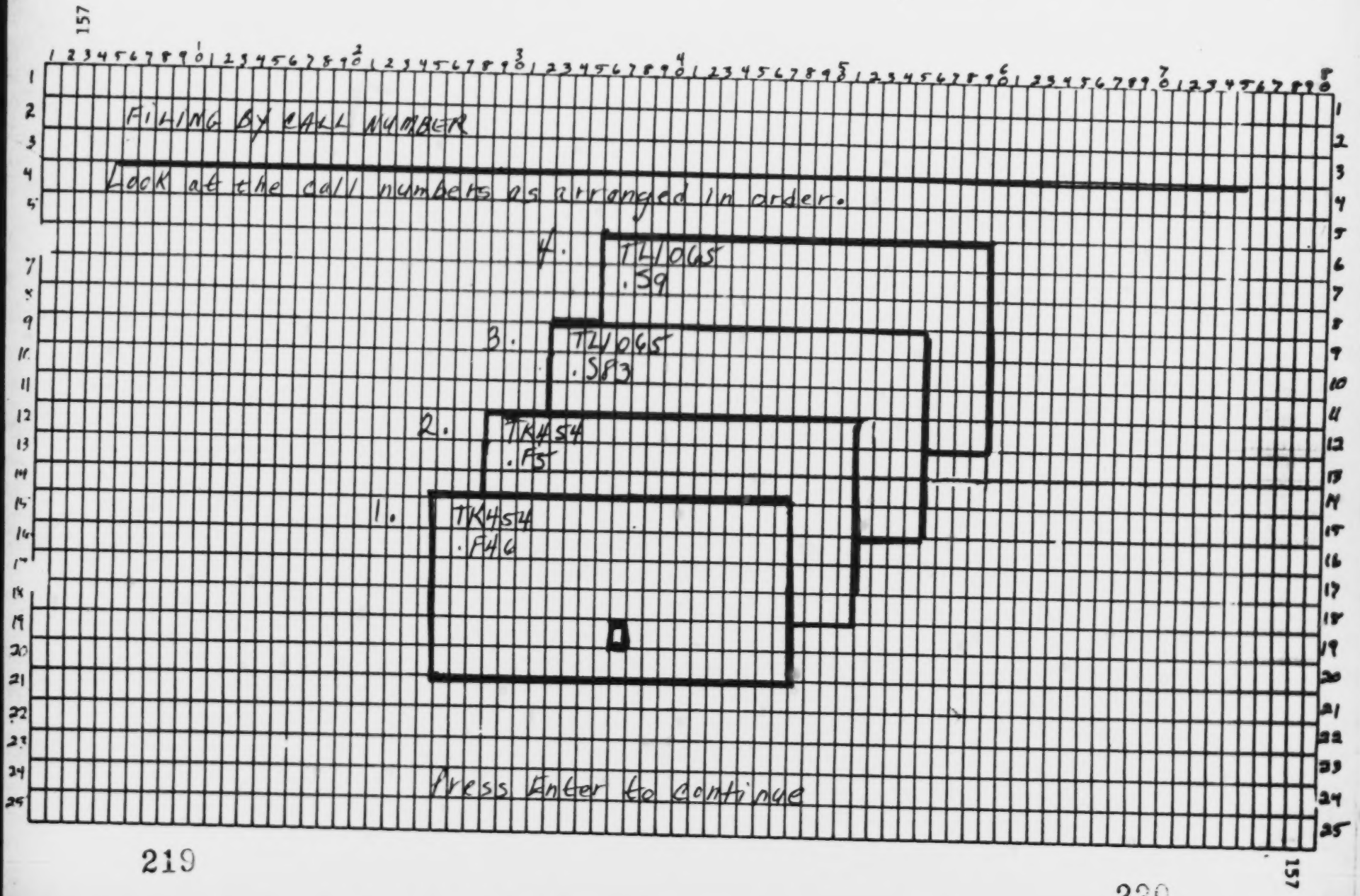
Hint: The number following the decimal is a decimal. Press Return and try again.

Press Enter to continue

LESSON cellar

UNIT review6

BORDERCOLOR magenta


FILING BY CALL NUMBER
Look at the call numbers as arranged in order.
4. TL1065 .S9
3. TL1065 .S83
2. TK454 .F57
1. TK4554 .F46
Press Enter to continue

LESSON callno

UNIT lastsem

BORDERCOLOR magenta

158

FILING BY CALL NUMBER

** You have learned to recognize that the call number is made up of the letters, numerals and decimals.

** You can now discriminate between the decimal portion and the numeral portion of the call number.

** You will get much more practice as you file cards and/or shelve books with the help of the library staff.

CONGRATULATIONS UPON THE COMPLETION OF THIS LESSON!

Press Enter to return to the General Index

221

158

APPENDIX J

User's Guide

User's Guide

Filing Basics will run on any IBM or compatible with a color monitor.

1. Place a DOS diskette in drive A.

2. Place Filing Basics diskette in drive B.

3. Turn on the computer and monitor.

4. At a> prompt, type b:

5. At b> prompt, type RUN FILBAS

THAT IS ALL!

APPENDIX K

Program Code

```
unit    filbas
colorb  blue
erase
border  blue
color   brwhite
at      5:26
write   F I L I N G    B A S I C S
color   red
box     7:23;3:54
box     6:25;4:52
color   white
at      9:22
write   A computer-based training program
                  using the
          Unison Authoring Language
at      17:24
write   Prepared by Mildred Aranov
                 NYIT
               May 1988
at      24:26
write   Press Enter to continue
kbranch enter,filsys
*
unit    filsys
colorb  blue
erase
border  blue
colorb  green
color   yellow
box     13:4;7:38;filled
at      9:9
write   The filing system you will
        learn is used in the NYIT
        library.
*
colorb  red
color   brwhite
box     19:42;12:78;filled
at      14:48
write   It is based on the filing
        rules of the American
        Library Association and
        the Library of Congress.
colorb  blue
color   white
at      24:26
write   Press Enter
kbranch enter,leave
*
unit    leave
jumpout genindex
*
```

```
unit    genindex
border  green
define  choice, 2
route   return,,genindex
at      5:25
color   brwhite
write   G E N E R A L   I N D E X
color   green
box     6:23;4:52
color   brwhite
at      9:26
write   a.  General principles

        b.  Filing by title

        c.  Filing by call number
at      20:22
write   Select a topic by typing its letter.
pause   keys=a,b,c
keytype choice,a,b,c
if      choice = 0
.       jumpout    genprinc
elseif  choice = 1
.       jumpout    title
elseif  choice = 2
.       jumpout    callno
endif
```

```
unit    genprinc
border  red
do      header1
color   brwhite
at      5:6
write   Can you guess what these three items have in common?
colorb  magenta
box     13:6;8:18;filled
color   black
draw    11:6;11:18;;8:6;8:18
color   brwhite
at      9:7
write   Webster's
        Dictionary
colorb  yellow
box     13:42;8:55;filled
color   black
at      10:46
write   NYNEX
draw    9:42;9:55;;12:42;12:55
colorb  cyan
box     21:10;16:62;filled
color   red
at      18:12
write   E N C Y C L O P A E D I A    B R I T A N N I C A
color   black
draw    16:11;21:11;;16:13;21:13;;16:15;21:15;;16:17;21:17
        ;;16:19;21:19;;16:21;21:21;;16:23;21:23;;16:25;21:25
        ;; 16:27;21:27;;16:29;21:29;;16:31;21:31;;16:33
        ;21:33;;16:35;21:35;;16:38;21:38;;16:40;21:40
        ;;16:42;21:42;;16:44;21:44;;16:46;21:46;;16:48
        ;21:48;;16:50;21:50;;16:52;21:52;;16:54;;21:54
        ;;16:56;21:56;;16:58;21:58;;16:60;21:60;;16:62
        ;21:62
colorb  black
color   brwhite
at      23:12
write   To see if you guessed right, go to the next screen
color   white
at      24:30
write   Press Enter
kbranch enter,princ
*
unit    header1
color   ltred
border  red
at      2:6
write   GENERAL PRINCIPLES
color   green
draw    3:6;3:75
*
unit    princ
border  red
```

```
do      header1
color   brwhite
at      6:8
write   What do the dictionary, telephone directory and the

        encyclopedia all have in common?
color   yellow
at      11:15
write   A FILING ARRANGEMENT OF COURSE !
color   brwhite
at      14:8
write   Are the entries in these items in 100%

        alphabetical order?
color   yellow
at      19:15
write   YOU BET !
color   white
at      24:26
write   Press Enter to continue
kbranch enter,misfil
*
unit    misfil
border  red
do      header1
color   ltcyan
at      5:6
write   Can you imagine how frustrated you would feel if:
color   yellow
at      7:10
write   * The word you were looking up in the DICTIONARY
            was misfiled.

        * The name you were looking up in the TELEPHONE
            DIRECTORY was misfiled.

        * The topic you were looking up in the
            ENCYCLOPEDIA was misfiled.
color   ltcyan
at      17:14
write   You would never be able to find them ! ! !

        You would just conclude that these items were
                              missing ! ! !
linesty double
color   ltred
box     21:13;16:59
color   brwhite
at      22:11
write   Now, to learn the first of the 2 general principles,
          go to the next screen
at      24:26
color   white
write   Press Enter to continue.
```

```
          Press F5 to back up.
kbranch enter, princ1
kbranch f5,princ
*
unit    princ1
linesty single
do      header1
border  red
color   brwhite
at      5:6
write   Here is the first of the two general principles of
          filing that we use in our library.
color   yellow
at      9:9
write   PRINCIPLE ONE

color   ltcyan
at      11:12
write   When filing, follow the principle of "nothing files
          before something."
color   yellow
at      15:9
write   EXAMPLE
color   ltcyan
at      17:12
write   Transportation

        Transportation problems

        Transportation problems in New York City.
color   white
at      24:26
write   Press Enter to continue.
          Press F5 to back up.
kbranch enter,ready1
kbranch f5,misfil
*
unit    ready1
do      header1
border  red
color   yellow
at      10:18
write   Are you ready for some practice?
color   brwhite
at      22:16
color   white
write   Press Enter to continue for practice
at      24:26
write   Press F1 to review
kbranch f1,princ1
kbranch enter,test1
*
unit    test1
do      header1
```

```
color   ltred
border  red
box     14:3;8:25
box     13:14;12:15
box     14:29;8:51
box     13:39;12:40
box     14:55;8:77
box     13:65;12:66
color   brwhite
at      7:4
write   A.
at      9:5
write   Art and beauty.
at      7:30
write   B.
at      9:31
write   Art and beauty in
         the Orient.
at      7:55
write   C.
at      9:57
write   Art.
color   ltcyan
at      17:8
write   Arrange these cards in filing order. Use the letters
        above each card in format xyz.  (No commas). Then
        press Enter.
color   brwhite
arrow   21:14
clrans
holdok
holdno
lowcase
at      23:14
erase   50,2
answer  cab
.       write    Great !
no
.       write    Hint:  Nothing files before something.
.                       Press return and try again.
endarrow
color   white
at      25:26
write   Press Enter to continue.
          Press F5 to back up.
kbranch enter,review1
kbranch f5,princ1
*
unit    review1
do      header1
color   ltcyan
at      6:12
write   Here are the cards as arranged in correct filing
          order.
```

```
color   yellow
draw    21:1;21:80
color   ltred
box     20:25;14:47
box     19:36;18:37
draw    14:28;12:28;;11:29;11:53;;11:53;17:53
        ;;18:53;18:48;;11:32;9:32;;8:33;8:58
        ;;8:58;14:58;;15:58;15:53
color   brwhite
at      15:22
write   1.
at      15:27
write   Art.
at      12:26
write   2.
at      12:30
write   Art and beauty.
at      9:29
write   3.
at      9:34
write   Art and beauty in the
          Orient.
color   white
at      24:26
write   Press Enter to continue
          Press F5 to back up
kbranch enter,princ2
kbranch f5,test1
*
unit    princ2
do      header1
color   brwhite
at      5:6
write   You are now ready to learn the second general
          principle.
color   yellow
at      9:9
write   PRINCIPLE TWO
color   ltcyan
at      12:12
write   When filing, apply the principle of "character-
         by-character comparison."
color   brwhite
at      19:10
write   To see how this principle is applied, go to the
          next screen.
color   white
at      24:30
write   Press Enter
kbranch enter,example
*
unit    example
do      header1
colorb  yellow
```

```
box     20:5;6:32;filled
color   black
at      7:7
write   EXAMPLE

        1. London and Londoners

        2. London, Andrea

        3. London as it is today

        4. London Bridge
colorb  black
color   brwhite
at      7:39
write   Compare entries 1 and 2.
        (Spaces, commas and case
        do not count).
        The letters which are the same
        are London and.  Can you see
        which are the differentiating
        letters.  To see if you
        guessed right,

        Press any key
*
pause
at      7:39
erase   46,18
color   ltred
write   The differentiating letters
        are the l in Londoners and
        the r in Andrea.
at      13:39
write   Now,compare entries 2 and 3.
        The common letters are
        London a.  Can you see which
        are the differentiating letters?
        To see if you guessed right,


        Press any key
*
pause
at      7:39
erase   46,18
color   yellow
at      7:39
write   The differentiating letters
        are the n in Andrea and the
        s in as.
at      13:39
write   Finally, compare entries
        3 and 4.  The differentiating
```

```
        letters are the a in as and
        the b in Bridge.  By now, you
        can easily see the common letters.

        Press any key to check if you're right.
*
pause
at      7:39
erase   49,18
write   Did you get it?

        The common letters are

        London.
color   white
at      24:26
write   Press Enter to continue
          Press F5 to back up
kbranch enter,ready2
kbranch f5,review1
*
unit    ready2
do      header1
border  red
color   yellow
at      8:16
write   Are you ready to practice what you just learned?
color   brwhite
at      22:16
write   Press Enter to continue for practice.
at      24:26
write   Press F1 to review.
kbranch enter, test2
kbranch f1,example
*
unit    test2
do      header1
color   ltred
border  red
box     14:3;8:25
box     13:14;12:15
box     14:29;8:51
box     13:39;12:40
box     14:55;8:77
box     13:65;12:66
color   brwhite
at      7:4
write   A.
at      9:5
write   Numbers and letters.
at      7:30
write   B.
at      9:31
write   Number concepts.
```

```
at      7:55
write   C.
at      9:57
write   Number problems.
color   ltcyan
at      15:8
write   Arrange these cards in filing order.  Use the
        letters above each card in format xyz.  (No commas).
        Then press Enter.
color   brwhite
arrow   18:14
clrans
holdok
holdno
lowcase
at      20:14
erase   68,2
answer  bca
.       write    You got it right !
no
.       write    Hint: Compare character-by-character.
.       write    Press return and try again.
endarrow
color   white
at      24:26
write   Press Enter to continue
          Press F5 to back up
kbranch enter,review2
kbranch f5,example
*
unit    review2
do      header1
color   ltcyan
at      6:12
write   Here are the cards as arranged in correct filing
          order.
color   yellow
draw    21:1;21:80
color   ltred
box     20:25;14:47
box     19:36;18:37
draw    14:28;12:28;;11:29;11:53;;11:53;17:53
        ;;18:53;18:48;;11:32;9:32;;8:33;8:58
        ;;8:58;14:58;;15:58;15:53
color   brwhite
at      15:22
write   1.
at      15:27
write   Number concepts.
at      12:26
write   2.
at      12:30
write   Number problems.
at      9:29
```

```
write    3.
at       9:34
write    Numbers and letters.
color    white
at       24:26
write    Press Enter to continue
           Press F5 to back up
kbranch enter,summary
kbranch f5,test2
*
unit     summary
do       header1
border   red
color    brwhite
at       6:5
write    In this lesson, you learned two basic principles

         of filing:
color    yellow
at       10:10
write    1.  Nothing files before something.

         2.  Character-by-character comparison.
color    brwhite
at       16:8
color    ltred
write    CONGRATULATIONS UPON YOUR COMPLETION OF THIS LESSON!
color    white
at       24:15
write    Press Enter to return to the general index.
kbranch enter,jump
*
unit     jump
jumpout genindex
*
```

```
unit    title
erase
border  blue
default
do      header2
color   red
box     8:7;4:18
colorb  cyan
box     7:9;5:16;filled
colorb  black
color   red
box     10:4;8:21
color   ltgreen
at      9:10
write   COMCAT
color   red
box     9:27;4:42
draw    12:27;9:27;;12:42;9:42
draw    8:27;8:42;;7:27;7:42;;6:27;6:42;;5:27;5:42
draw    4:30;9:30;;4:33;9:33;;4:36;9:36;;4:39;9:39
color   ltgreen
at      11:31
write   SHELFLIST
color   red
box     8:49;4:64
draw    7:49;7:64;;6:49;6:64;;5:49;5:64
draw    4:52;8:52;;4:55;8:55;;4:58;8:58
draw    4:61;8:61;;8:49;10:49;;4:64;10:64
color   ltgreen
at      10:52
write   MASTERFILE
color   brwhite
at      14:4
write   You must understand alphabetic filing in order to:

            1.  Search the COMCAT

            2.  File periodicals by title in the SHELFLIST

            3.  File cards by title in the MASTERFILE
*
color   white
at      24:25
write   Press Enter to continue
kbranch enter,rule1
*
unit    header2
color   yellow
at      2:6
write   FILING BY TITLE
color   ltred
draw    3:6;3:75
*
unit    rule1
```

```
do      header2
color   ltcyan
at      5:5
write   This is the first of four simple rules of filing.
color   ltmagenta
at      7:29
write   RULE ONE
color   brwhite
at      9:9
write   When filing by title, disregard initial articles:
            a,
            an,
            the
colorb   magenta
box     22:23;14:46;filled
color   brwhite
at      15:24
write   Day and night

        A day in my life

        The days of our years
colorb  black
color   white
at      25:24
write   Press Enter to continue
kbranch enter,rulexamp
*
unit    rulexamp
do      header2
color   ltcyan
at      6:12
write   Here is another filing example showing initial

        articles disregarded.
colorb  green
box     20:23;11:47;filled
color   brwhite
at      13:24
write   The empathizers

        The emperor

        An emperor named Jones
colorb  black
color   white
at      24:18
write   Press Enter to continue for practice
                  Press F1 to review
kbranch enter,test3
kbranch f1,rule1
*
unit    test3
do      header2
```

```
do      arrange
color   ltcyan
at      7:4
write   A.
at      9:5
write   The boys of Boy's
          Town.
at      7:30
write   B.
at      9:31
write   Boats.
at      7:55
write   C.
at      9:57
write   A book a day.
color   brwhite
at      17:8
write   Arrange these cards in filing order.  At the
        cursor, use the letters above each each card
        in format xyz. (No commas).  Then press Enter.
color   ltred
arrow   21:14
clrans
holdok
holdno
lowcase
at      23:14
erase   50,2
answer  bca
.       write    Very good !
no
.       write    Hint: Disregard initial articles.
.                Press return and try again.
endarrow
color   white
at      25:26
write   Press Enter to continue
          Press F5 to back up
kbranch enter, review3
kbranch f5,rulexamp
*
unit    review3
do      header2
color   ltcyan
at      6:12
write   Here are the cards as arranged in correct filing
          order.
color   magenta
box     20:25;14:47
box     19:36;18:37
draw    14:28;12:28;;11:29;11:53;;11:53;17:53
draw    18:53;18:48;;11:32;9:32;;8:33;8:58
draw    8:58;14:58;;15:58;15:53
color   yellow
```

```
at      15:22
write   1.
at      15:27
write   Boats.
at      12:26
write   2.
at      12:30
write   A book a day.
at      9:29
write   3.
at      9:34
write   The boys of Boy's
          Town.
color   white
at      24:18
write   Press Enter to continue to Rule 2
          Press F5 to back up
kbranch enter,rule2
kbranch f5,test3
*
unit    rule2
do      header2
color   ltgreen
at      5:9
write   This is the second of four rules of filing.
color   ltred
at      7:29
write   RULE TWO
color   brwhite
at      9:9
write   Spaces and their equivalents have equal filing

        value.  That is, they are considered as spaces.

        The equivalents include:

               Dashes
               Hyphens
               Diagonal slashes
               Periods
color   white
at      24:18
write   Press Enter to see an example
          Press F5 to back up
kbranch enter,example2
kbranch f5,review3
*
unit    example2
do      header2
colorb  red
box     23:5;5:34;filled
color   yellow
at      6:7
write   EXAMPLE
```

```
         1. I.D.A.

         2. I.E.

         3. I.E.E.E.

         4. IBM

         5. IBM/PC

         6. IBM Personal Computer

         7. IBFU/IBW

         8. IBFU monographs
colorb   black
color    ltred
at       7:39
write    Compare entries 3 and 4.
         I. (period = space) E. comes
         before IB.

         Remember spaces are nothing
         and nothing comes before
         something.

         Press any key to continue
*
pause
at       7:39
erase    46,18
color    ltcyan
write    Compare entries 7 and 8.

         IBFU/ (slash = space) I . .

         comes before IBFU m . . .
color    white
at       25:26
write    Press Enter to continue
kbranch  enter,ready3
*
unit     ready3
do       header2
color    ltred
at       8:26
write    Are you ready to practice ?
color    white
at       20:23
write    Press Enter to continue for practice.
                   Press F1 to review.
kbranch  enter,test4
kbranch  f1,rule2
```

```
*
unit    arrange
color   red
box     14:3;8:25
box     13:14;12:15
box     14:29;8:51
box     13:39;12:40
box     14:55;8:77
box     13:65;12:66
*
unit    test4
do      header2
do      arrange
color   brwhite
at      7:4
write   A.
at      7:30
write   B.
at      7:55
write   C.
color   yellow
at      9:5
write   OAU treaty.
at      9:31
write   OAU/STRC
at      9:57
write   O.A.U.
color   ltcyan
at      15:8
write   Arrange these cards in filing order.
        At the cursor, use the letters above each card in
        format xyz. (No commas).  Then press Enter.
color   brwhite
arrow   19:14
clrans
holdok
holdno
lowcase
at      21:14
erase   50,2
answer  cba
.       write     Great !
no
.       write     Hint:  Slashes and periods are treated
.                   as spaces.  Press Enter and try again.
endarrow
color   white
at      25:26
write   Press Enter to continue
         Press F5 to back up
kbranch enter,review4
kbranch f5,example2
*
unit    review4
```

```
do        header2
color     magenta
box       20:25;14:47
box       19:36;18:37
draw      14:28;12:28;;11:29;11:53;;11:53;17:53
draw      18:53;18:48;;11:32;9:32;;8:33;8:58
draw      8:58;14:58;;15:58;15:53
color     ltcyan
at        6:12
write     Here are the cards as arranged in correct filing
            order.
color     brwhite
at        15:22
write     1.
at        15:27
write     O.A.U.
at        12:26
write     2.
at        12:30
write     OAU/STRC
at        9:29
write     3.
at        9:34
write     OAU today
color     white
at        24:18
write     Press Enter to continue to Rule 3
            Press F5 to back up
kbranch enter,rule3
kbranch f5,test4
*
unit      rule3
do        header2
color     brwhite
at        5:7
write     This is the third of the four rules of filing
          in this lesson.
color     ltred
at        7:29
write     RULE THREE
color     yellow
at        9:7
write     All character strings beginning with numerals file
          before character strings beginning with letters.
colorb    magenta
box       22:5;12:32;filled
color     brwhite
at        13:7
write     EXAMPLE

          26 ways of looking at man

          44 Irish short stories
```

```
         A priori arguments

         Abacus
colorb   ltblue
box      21:37;16:65;filled
color    brwhite
at       17:38
write    ** The numerals file
         in numerical order
         before the letter A.
colorb   black
color    white
at       24:28
write    Press Enter to continue
           Press F5 to back up
kbranch  enter,ready4
kbranch  f5,review4
*
unit     ready4
do       header2
color    ltred
at       7:30
write    Ready for practice ?
color    white
at       18:24
write    Press Enter to continue for practice
                   Press F1 to review
kbranch  enter,test5
kbranch  f1,rule3
*
unit     test5
do       header2
do       arrange
color    ltcyan
at       7:4
write    A.
at       7:30
write    B.
at       7:55
write    C.
color    yellow
at       9:5
write    American journal of
           metals.
at       9:31
write    Advances in medicine
at       9:57
write    1987 census
color    brwhite
at       15:8
write    Arrange these cards in filing order.
         Use the letters above each card in
         format xyz. (No commas).  Then press Enter.
color    ltred
```

```
arrow    19:14
clrans
holdok
holdno
lowcase
at       21:14
erase    70,2
answer   cba
.        write    Excellent !
no
.        write    Hint: Numbers file before the first letter.
.                 Press Return and try again.
endarrow
color    white
at       24:26
write    Press Enter to continue
           Press F5 to back up
kbranch enter, review5
kbranch f5,rule3
*
unit     review5
do       header2
color    brwhite
at       6:12
write    Here are the cards as arranged in correct filing
           order.
color    red
box      20:25;14:47
box      19:36;18:37
draw     14:28;12:28;;11:29;11:53;;11:53;17:53
draw     18:53;18:48;;11:32;9:32;;8:33;8:58
draw     8:58;14:58;;15:58;15:53
color    yellow
at       15:22
write    1.
at       15:27
write    1987 census.
at       12:26
write    2.
at       12:30
write    Advances in medicine
at       9:29
write    3.
at       9:34
write    American journal of
           metals.
color    white
at       24:18
write    Press Enter for the final rule.
           Press F5 to back up
kbranch enter,rule4
kbranch f5,test5
*
unit     rule4
```

```
do      header2
color   ltred
at      5:29
write   RULE FOUR
color   brwhite
at      7:12
write   The ampersand (&) is filed as its spelled out
        equivalent.  Applying this rule, arrange these
        entries in filing order.
color   ltmagenta
at      11:18
write   a.  A and P Company

        b.  A & B poetry

        c.  A and G motor vehicles

        d.  A & O International
color   yellow
at      19:12
write   Use the letters next to the entries.
        At the cursor, write your answer in format wxyz.
color   brwhite
arrow   22:14
clrans
holdok
holdno
lowcase
at      24:14
erase   50,2
answer  bcda
.       write    Great ! !
no
.       write    Hint:  Treat the ampersand as "and".
.                Press Return and try again.
endarrow
color   white
at      25:22
write   Press Enter to review
          Press F5 to back up
kbranch enter,summary2
kbranch f5,review5
*
unit    summary2
do      header2
color   ltred
at      5:5
write   In this lesson, you learned the following rules:
color   yellow
at      7:8
write   1.  Disregard initial articles, i.e. a, an, the

        2.  Spaces and their equivalents have equal
            filing value, i.e. spaces, dashes, hyphens,
```

diagonal slashes and periods.

3. Character strings beginning with numerals file before character strings beginning with letters.

4. The ampersand (&) is filed as its spelled out equivalent.

```
color    ltred
at       21:11
write    CONGRATULATIONS UPON COMPLETION OF THIS LESSON ! !
color    white
at       24:15
write    Press Enter to return to the General Index
kbranch  enter,goback
*
unit     goback
jumpout  genindex
```

```
unit    callno
colorb  black
do      header3
border  magenta
color   red
box     15:7;5:20
draw    13:7;13:20;;11:7;11:20
draw    9:7;9:20;;7:7;7:20
draw    5:9;7:9;;5:12;7:12;;5:14;7:14;;5:16;7:16;;5:18;7:18
draw    7:8;9:8;;7:11;9:11;;7:13;9:13;;7:15;9:15;;7:17;9:17
draw    9:9;11:9;;9:12;11:12
draw    9:14;11:14;;9:16;11:16;;9:18;11:18
draw    11:7;13:7;;11:10;13:10;;11:13;13:13;;11:15;13:15
draw    11:17;13:17
draw    13:8;15:8;;13:11;15:11;;13:14;15:14;;13:16;15:16
draw    13:18;15:18
box     9:56;5:71
draw    8:56;8:71;;7:56;7:71;;6:56;6:71
draw    5:59;9:59;;5:62;9:62;;5:65;9:65;;5:68;9:68
draw    12:56;9:56;;12:71;9:71
color   yellow
at      6:23
write   You must understand alphanumeric
        filing in order to:

        1.  Locate a book on the stacks

        2.  Shelve and reshelve books

        3.  File cards by call number in
             the shelflist
color   ltcyan
at      16:11
write   STACKS
at      11:60
write   SHELFLIST
color   brwhite
at      20:12
write   The call number is the address of the book on the
        shelves.  What happens when a book is mis-shelved?
color   white
at      24:22
write   Press Enter to see the scenario.
kbranch enter,scenario
*
unit    scenario
do      header3
color   green
box     22:6;4:59
color   brwhite
at      5:8
write   * *  The user has found the book he wants on the
               shelf and has written down the call number
```

```
        * *  He looks for the book on the shelf

        * *  When it is not there, he asks at the desk if
                it is circulating

        * *  The staff tells him it is not out

        * *  He assumes the book is misplaced or lost

        * *  In any case, he does not know where or how
                it can be located

        * *  Neither does anybody else on the library staff
color   white
at      24:23
write   Press Enter to continue
kbranch enter,call2
*
unit    call2
do      header3
color   yellow
at      4:6
write   The call number is alphanumeric.  It consists of

        letters, numerals and decimals.
colorb  green
box     18:7;10:22;filled
color   black
at      12:9
write   HF5538.4
        .B35
color   ltgreen
colorb  black
at      11:34
write   Remember that in filing by call
        number, we use the general principles
        of filing:

          1.  Nothing files before something

          2.  Character-by-character comparison

          Press any key to continue
*
pause
at      11:34
erase   46,20
color   ltcyan
write   Look at the call number.
        Can you see which are:

             the letters
```

```
                the numerals

                the decimals

          Press any key to see if you're right
*
pause
at        11:34
erase     46,20
color     brwhite
write     The letters are:     HF and B

          The numeral is:      5538

          The decimals are:    .4 and .35

          Press any key to continue
*
pause
at        11:34
erase     46,20
color     ltred
write     Let us talk about the decimal part
          of the number.

          Look at the first line of the
          number.  HF5538.4 would file
          after HF5538.38 because decimal
          .38 is an expansion of decimal .3

          Press any key to continue
*
pause
at        11:34
erase     46,20
color     ltmagenta
write     Now look at the second line of the
          number.

          .B35 would file before .B4 because
          decimal .35 is an expansion of .3
          and .3_____ expanded to any number
          of spaces would always file before
          .4
color     white
at        24:26
write     Press Enter to continue
kbranch   enter,call3
*
unit      call3
do        header3
color     ltgreen
at        5:5
write     Here are some call numbers filed in the correct
```

```
          order.
color     yellow
at        22:4
write     1.  DS63.2
              .R9L32
at        19:16
write     2.  DS63.2
              .R9L4
at        16:28
write     3.  HF5549.5
              .B39E86
at        13:40
write     4.  HF5549.5
              .B39E9
at        10:52
write     5.  JK274
              .P813
at        7:64
write     6.  JK274
              .P9
color     white
at        24:26
write     Press Enter to continue
kbranch   enter,ready5
*
unit      header3
color     ltcyan
at        2:6
write     FILING BY CALL NUMBER
color     red
draw      3:6;3:75
*
unit      ready5
do        header3
color     ltred
at        7:15
write     Are you ready to file some cards?

          Or to shelve some books?
color     white
at        24:22
write     Press Enter to continue for practice
                Press F1 to review
kbranch   enter,test6
kbranch   f1,call2
*
unit      test6
do        header3
color     red
box       10:3;5:19
box       9:10;8:11
box       10:21;5:37
box       9:28;8:29
```

```
box     10:39;5:55
box     9:46;8:47
box     10:57;5:74
box     9:65;8:66
color   ltcyan
at      4:4
write   A.
at      4:22
write   B.
at      4:40
write   C.
at      4:58
write   D.
color   white
at      6:6
write   TK454
        .F468
at      6:24
write   TL1065
        .S9
at      6:42
write   TL1065
        .S86
at      6:60
write   TK454
        .F5
at      14:4
write   Arrange these call numbers in filing order.

        At the cursor, write the letters next to each

        card in format wxyz.
arrow   20:9
clrans
holdok
holdno
lowcase
at      22:9
erase   50,2
answer  adcb
.       write    Great !
no
.       write    Hint:  The number following the decimal is
.                  a decimal.  Press Return and try again.
endarrow
at      24:26
write   Press Enter to continue
kbranch enter,review6
*
unit    review6
do      header3
color   yellow
at      4:5
write   Look at the call numbers as arranged in order.
```

```
color   magenta
box     20:25;14:47
box     19:36;18:37
draw    14:28;12:28;;11:29;11:51
draw    11:51;17:51;;18:51;18:48
draw    11:32;9:32;;8:33;8:55
draw    8:55;14:55;;15:55;15:51
draw    8:35;6:35;;5:35;5:59
draw    5:59;11:59;;12:59;12:55
color   white
at      15:22
write   1.
at      15:27
write   TK454
        .F46
at      12:26
write   2.
at      12:30
write   TK454
        .F5
at      9:29
write   3.
at      9:34
write   TL1065
        .S83
at      6:31
write   4.
at      6:37
write   TL1065
        .S9
at      24:26
write   Press Enter to continue
kbranch enter,lastsum
*
unit    lastsum
do      header3
color   ltred
box     18:4;6:63
color   white
at      7:7
write   * * You have learned to recognize that the call
            number is made up of letters, numerals and
            decimals.

        * * You can now discriminate between the decimal
            portion and the numeral portion of the call
            number.

        * * You will get much more practice as you file
            cards and/or shelve books with the help of
            the library staff.
color   ltred
at      20:8
write   CONGRATULATIONS UPON YOUR COMPLETION OF THIS LESSON!
```

```
color   white
at      24:14
write   Press Enter to return to the General Index.
kbranch enter,exit
*
unit    exit
jumpout genindex
*
```

APPENDIX L

Locator

Locator

The CAI program disk that was produced in this thesis/project is avialable at the office of the graduate program in Master of Science, in Training and Learning Technology, New York Institute of Technology, Old Westbury, N.Y. 11568. The disk is a 5 1/4" floppy.

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